DATA ITEM DESCRIPTION

OMB No. 0704-0188
Exp. Date: Jun 30 1986

1.	2. DOCUMENTATION NUMBER
Contractor's Progress, Status and Management Report	DI-MGMT-80227

DESCRIPTION/PURPOSE

3.1 The Contractor's Progress, Status and Management Report indicates the progress of work and the status of the program and of the assigned tasks, reports costs, and informs of existing or potential problem areas.

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6a. DTIC REQUIRED	6b. GIDEP REQUIRED
860905	N/SPAWAR		

7. APPLICATION/INTERRELATIONSHIP

7.1 This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by the specific and discrete task requirement for this data included in the contract.

7.2 This DID may be applied in any contract and during any program phase.

7.3 This DID supersedes DI-A-2090A, DI-A-3025A, UDI-A-22050B, UDI-A-22052A, UDI-A-23960, DI-A-30024, and DI-A-30606. (cont. on page 2)

8. APPROVAL LIMITATION	9a. APPLICABLE FORMS	9b. AMSC NUMBER
		N3947

10. PREPARATION INSTRUCTIONS

10.1 Contract - This data item is generated by the contract which contains a specific and discrete work task to develop this data product.

10.2 Format - This report shall be typewritten on standard size (e.g. 8 1/2" by 11") white paper, and securely stapled. Pages shall be sequentially numbered. All attachments shall be identified and referenced in the text of the report. The report shall be prepared in the contractor's format and shall be legible and suitable for reproduction.

10.3 Content - The report shall include:

a. A front cover sheet which includes the contractor's name and address, the contract number, the nomenclature of the system or program, the date of the report, the period covered by the report, the title of the report, either the serial number of the report or the Contract Data Requirements List (CDRL) sequence number, the security classification, and the name of the issuing Government activity;

b. Description of the progress made against milestones during the reporting period;

c. Results, positive or negative, obtained related to previously-identified problem areas, with conclusions and recommendations;

d. Any significant changes to the contractor's organization or method of operation, to the project management network, or to the milestone chart;

e. Problem areas affecting technical or scheduling elements, with background and any recommendations for solutions beyond the scope of the contract;

f. Problem areas affecting cost elements, with background and any recommendations for solutions beyond the scope of the contract;

g. Cost curves showing actual and projected conditions throughout the contract;

h. Any cost incurred for the reporting period and total contractual expenditures as of reporting date; (cont. on page 2)

APPLICATION/INTERRELATIONSHIP (Cont'd)

7.4 Paragraphs 10.3.f, 10.3.g, and 10.3.h herein should be tailored on DD Form 1423 when such cost data is already submitted through a sophisticated cost reporting system under the contract.

10. PREPARATION INSTRUCTIONS (Cont'd)

i. Person-hours expended for the reporting period and cumulatively for the contract;

j. Any trips and significant results;

k. Record of all significant telephone calls and any commitments made by telephone;

l. Summary of Engineering Change Proposal (ECP) status, including identification of proposed ECPs, approved ECPs, and implemented ECPs;

m. Contract schedule status;

n. Plans for activities during the following reporting period;

o. Name and telephone number of preparer of the report;

p. Appendixes for any necessary tables, references, photographs, illustrations, and charts.

*U.S. GOVERNMENT PRINTING OFFICE: 1986-704-037/50176

DATA ITEM DESCRIPTION

Form Approved
OMB No. 0704-0188

1. TITLE	2. IDENTIFICATION NUMBER
Government Furnished Material (GFM) and End Item Transaction Report **Technical Report - Study/Services**	DI-MISC-80508

3. DESCRIPTION/PURPOSE

3.1 A technical report provides fully documented results of studies or analysis performed.

4. APPROVAL DATE *(YYMMDD)*	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6a. DTIC APPLICABLE	6b. GIDEP APPLICABLE
880115	G/T2137	**X**	

7. APPLICATION/INTERRELATIONSHIP

7.1 This data item description contains the format and content preparation instructions for the data product generated by the specific and discrete task requirement as delineated in the contract.

7.2 This DID supersedes DI-A-5029.

7.3 Defense Technical Information Center (DTIC), Cameron Station, Alexandria, VA 22314.

8. APPROVAL LIMITATION	9a. APPLICABLE FORMS	9b. AMSC NUMBER
		G4291

10. PREPARATION INSTRUCTIONS

10.1 Format.

(a) The report and all attachments shall be typewritten or otherwise clearly lettered, and shall be duplicated using non-fading ink.

(b) Text shall be prepared on standard letter size paper(8 1/2" X 11").

(c) When attachments are included, they shall be fully indentified, referenced in the text, and folded to conform to the size paper used in the report.

(d) Security classification and distribution markings shall conform to the requirements of the contract, purchase description and security requirements checklist, as applicable.

10.2 Content.

(a) Title page - Identifies the report by providing contract number, project name or purchase description title, task number, and reporting period. (continued on page 2)

11. DISTRIBUTION STATEMENT

DISTRIBUTION STATEMENT A: Approved fro public release; distribution is unlimited.

Block 10. Preparation Instructions (Continued)

(b) Table of Contents
(c) Section I - Includes the following:
    (1) Introduction
    (2) Summary - A brief statement of results obtained from the analytic effort.
    (3) Conclusions and their condensed technical substantiations.
(d) Section II - A complete and detatiled description of the analytic results which led to the conclusions stated in Section I above.

DATA ITEM DESCRIPTION

Form Approved
OMB No. 0704-0188

2. TITLE	1. IDENTIFICATION NUMBER
TECHNICAL AND MANAGEMENT WORK PLAN	DI-MGMT-81117

3. DESCRIPTION/PURPOSE

3.1 The Technical and Management Work Plan describes the contractor's plan to implement the Statement of Work (SOW) tasking provided via delivery order or task order.

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6a. DTIC APPLICABLE	6b. GIDEP APPLICABLE
901219	ASOB-SEP-A		

7. APPLICATION/INTERRELATIONSHIP

7.1 This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by the specific and discrete task requirement as delineated in the contract.

7.2 This DID may be used on any contract which is delivery order oriented.

8. APPROVAL LIMITATION	9a. APPLICABLE FORMS	9b. AMSC NUMBER
		A6003

10. PREPARATION INSTRUCTIONS

10.1 Format. The plan shall be submitted in a contractor devised and Government approved format which conforms to the following:

10.1.1 Identification. The plan shall identify the contractor's name, contract number, title and number of the delivery or task order, security classification of the plan, name of contract monitor, and the Government office issuing the tasking.

10.1.2 Descriptive material. The plan shall include descriptive material, system diagrams, sketches, photographs, tables, forms, graphs, worksheets, charts, drawings, etc., as required.

10.1.3 Page size. The plan shall be typewritten or printed on 8 1/2 x 11 inch paper. The pages shall be sequentially numbered and securely bound together. As necessary, graphic material may be one-way foldouts. All attachments shall be identified and referenced in the text. Each section and paragraph shall be numbered.

10.1.4 Table of contents and index. Plans of more than 30 pages in length shall contain a table of contents.

(Continued on Page 2)

11. DISTRIBUTION STATEMENT

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Block 10, Preparation Instructions (Continued)

10.1.5 Legibility. The document shall be legible and reproducible.

10.2 Content. The plan shall include information necessary to substantiate

the contractor's approach to completing the delivery or task order and information necessary for the Government to assess the soundness of the contractor's approach. The plan shall contain the following:

10.2.1 Organizational structure. The plan shall include a description of the contractor's organizational structure and assignment of functions, duties, and responsibilities which will be assigned in support of the tasking. Additionally, the plan shall identify the contractor's procedures, policies, and reporting requirements established to initiate, monitor, control, complete, and report on activities required of the delivery or task order.

10.2.2 Organizational interfaces. The plan shall describe all interfaces between the contractor and the Government and between the contractor and other contractors or subcontractors which are necessary to complete the assigned tasking. This shall include a description of the applicable responsibilities and functional relationships between those organizations.

10.2.3 Methodology. The plan shall include a narrative description clearly defining the technical approach (or method) including tools, standards, and procedures to be used by the contractor to accomplish the delivery or task order. All documentation, activity, or decisions required from the Government or other Government contractor shall be identified.

10.2.4 Personnel. The plan shall identify the names and types of personnel assigned to accomplish the delivery or task order. The plan shall show how the combination of people assigned to each task provides a sufficient knowledge or experience base for that task. This includes identifying any special education, training, experience, or skills of these individuals. Also, any special administrative support requirements shall be identified.

10.2.5 Security. The plan shall identify any special or unique security requirements resulting from the delivery or task order.

10.2.6 Schedule. The plan shall include a milestone chart(s) graphically depicting the schedule of events associated with the delivery or task order. The level of detail shall be sufficient to clearly show how each subtask shall be performed. This includes:

Block 10, Preparation Instructions (Continued)

a. Contractor activities.

b. Contractor deliverances (interim and final), including briefings (if required).

c. Other program milestones as appropriate (including Government input in 10.2.3 above).

d. Periodic milestones to allow adequate Government review of contractor progress.

10.2.7 Resources chart. The plan shall include a resources chart that graphically and numerically identifies the contractor's total planned manhour level of effort (LOE) and LOE by month for each subtask identified in the delivery or task order. Proposed monthly subtask manhours shall be broken out by labor category in support of the delivery or task order.

10.2.8 Travel. The plan shall include a list of the travel requirements that shall include the following for each trip:

a. Company or Government agency visited.

b. Location.

c. Number of travellers by labor category.

d. Trip duration.

10.2.9 Contractor requested data. The plan shall include the contractor's best assessment of any additional data required by the contractor. This list shall be as detailed as possible and shall include document titles, responsible Government organizations, and responsible Government contractors. The criticality of each data required shall be identified.

10.2.10 Deliverables. The plan shall include a brief description of the contents of each deliverable to be provided as a result of the delivery or task order.

DATA ITEM DESCRIPTION

Title: SOFTWARE DEVELOPMENT PLAN (SDP)

Number: DI-IPSC-81427A
AMSC Number: N7372
DTIC Applicable: No
Office of Primary Responsibility: N/SPAWAR
Applicable Forms: N/A
Use, Relationships:

Approval Date: 20000110
Limitation: N/A
GIDEP Applicable: No

The Software Development Plan (SDP) describes a developer's plans for conducting a software development effort. The term "software development" in this Data Item Description (DID) is meant to include new development, modification, reuse, reengineering, maintenance, and all other activities resulting in software products.

The SDP provides the acquirer insight into, and a tool for monitoring, the processes to be followed for software development, the methods to be used, the approach to be followed for each activity, and project schedules, organization, and resources.

This DID contains the format and content preparation instructions for the data product generated by specific and discrete task requirements as delineated in the contract.

This DID is used when the developer is tasked to develop and record plans for conducting software development activities.

Portions of this plan may be bound separately if this approach enhances their usability. Examples include plans for software configuration management and software quality assurance.

This DID supersedes DI-IPSC-81427.

Requirements:

1. Reference documents. None.

2. General instructions.

a. Automated techniques. Use of automated techniques is encouraged. The term "document" in this DID means a collection of data regardless of its medium.

b. Alternate presentation styles. Diagrams, tables, matrices, and other presentation styles are acceptable substitutes for text when data required by this DID can be made more readable using these styles.

3. Format. Following are the format requirements.

The Contract Data Requirements List (CDRL)(DD 1423) should specify whether deliverable data are to be delivered on paper or electronic media; are to be in a given electronic form (such as ASCII, CALS, or compatible with a specified word processor or other support software); may be delivered in developer format rather than in the format specified herein; and may reside in a computer-aided software engineering (CASE) or other automated tool rather than in the form of a traditional document.

4. Content. The plan shall contain the following:

a. Title page or identifier. The document shall include a title page containing, as applicable: document number; volume number; version/revision indicator; security markings or other restrictions on the handling of the document; date; document title; name, abbreviation, and any other identifier for the system, subsystem, or item to which the document applies; contract number; CDRL item number; organization for which the document has been prepared; name and address of the preparing organization; and distribution statement. For data in a database or other alternative form, this information shall be included on external and internal labels or by equivalent identification methods.

b. Table of contents. The document shall contain a table of contents providing the number, title, and page number of each titled paragraph, figure, table, and appendix. For data in a database or other alternative form, this information shall consist of an internal or external table of contents containing pointers to, or instructions for accessing, each paragraph, figure, table, and appendix or their equivalents.

c. Page numbering/labeling. Each page shall contain a unique page number and display the document number, including version, volume, and date, as applicable. For data in a database or other alternative form, files, screens, or other entities shall be assigned names or numbers in such a way that desired data can be indexed and accessed.

d. Response to tailoring instructions. If a paragraph is tailored out of this DID, the resulting document shall contain the corresponding paragraph number and title, followed by "This paragraph has been tailored out." For data in a database or other alternative form, this representation need occur only in the table of contents or equivalent.

e. Multiple paragraphs and subparagraphs. Any section, paragraph, or subparagraph in this DID may be written as multiple paragraphs or subparagraphs to enhance readability.

f. Standard data descriptions. If a data description required by this DID has been published in a standard data element dictionary specified in the contract, reference to an entry in that dictionary is preferred over including the description itself.

g. Substitution of existing documents. Commercial or other existing documents may be substituted for all or part of the document if they contain the required data.

The numbers shown designate the paragraph numbers to be used in the document.

1. Scope. This section shall be divided into the following paragraphs.

1.1 Identification. This paragraph shall contain a full identification of the system and the software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

1.2 System overview. This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarize the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

1.3 Document overview. This paragraph shall summarize the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

1.4 Relationship to other plans. This paragraph shall describe the relationship, if any, of the SDP to other project management plans.

2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this plan. This section shall also identify the source for all documents not available through normal Government stocking activities.

3. Overview of required work. This section shall be divided into paragraphs as needed to establish the context for the planning described in later sections. It shall include, as applicable, an overview of:

a. Requirements and constraints on the system and software to be developed

b. Requirements and constraints on project documentation

c. Position of the project in the system life cycle

d. The selected program/acquisition strategy or any requirements or constraints on it

e. Requirements and constraints on project schedules and resources

f. Other requirements and constraints, such as on project security, privacy, methods, standards, interdependencies in hardware and software development, etc.

4. Plans for performing general software development activities. This section shall be divided into the following paragraphs. Provisions corresponding to non-required activities may be satisfied by the words "Not applicable." If different builds or different software on the project require different planning, these differences shall be noted in the paragraphs. In addition to the

content specified below, each paragraph shall identify applicable risks/uncertainties and plans for dealing with them.

4.1 Software development process. This paragraph shall describe the software development process to be used. The planning shall cover all contractual clauses concerning this topic, identifying planned builds, if applicable, their objectives, and the software development activities to be performed in each build.

4.2 General plans for software development. This paragraph shall be divided into the following subparagraphs.

4.2.1 Software development methods. This paragraph shall describe or reference the software development methods to be used. Included shall be descriptions of the manual and automated tools and procedures to be used in support of these methods. The methods shall cover all contractual clauses concerning this topic. Reference may be made to other paragraphs in this plan if the methods are better described in context with the activities to which they will be applied.

4.2.2 Standards for software products. This paragraph shall describe or reference the standards to be followed for representing requirements, design, code, test cases, test procedures, and test results. The standards shall cover all contractual clauses concerning this topic. Reference may be made to other paragraphs in this plan if the standards are better described in context with the activities to which they will be applied. Standards for code shall be provided for each programming language to be used. They shall include at a minimum:

a. Standards for format (such as indentation, spacing, capitalization, and order of information)

b. Standards for header comments (requiring, for example, name/identifier of the code; version identification; modification history; purpose; requirements and design decisions implemented; notes on the processing (such as algorithms used, assumptions, constraints, limitations, and side effects); and notes on the data (inputs, outputs, variables, data structures, etc.)

c. Standards for other comments (such as required number and content expectations)

d. Naming conventions for variables, parameters, packages, procedures, files, etc.

e. Restrictions, if any, on the use of programming language constructs or features

f. Restrictions, if any, on the complexity of code aggregates

4.2.3 Reusable software products. This paragraph shall be divided into the following subparagraphs.

4.2.3.1 Incorporating reusable software products. This paragraph shall describe the approach to be followed for identifying, evaluating, and incorporating reusable software products, including the scope of the search for such products and the criteria to be used for their evaluation. It shall cover all contractual clauses concerning this topic. Candidate or selected reusable software products known at the time this plan is prepared or updated shall be identified and described, together with benefits, drawbacks, and restrictions, as applicable, associated with their use.

4.2.3.2 Developing reusable software products. This paragraph shall describe the approach to be followed for identifying, evaluating, and reporting opportunities for developing reusable software products. It shall cover all contractual clauses concerning this topic.

4.2.4 Handling of critical requirements. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for handling requirements designated critical. The planning in each subparagraph shall cover all contractual clauses concerning the identified topic.

4.2.4.1 Safety assurance
4.2.4.1 Security assurance
4.2.4.3 Privacy assurance
4.2.4.4 Assurance of other critical requirements

4.2.5 Computer hardware resource utilization. This paragraph shall describe the approach to be followed for allocating computer hardware resources and monitoring their utilization. It shall cover all contractual clauses concerning this topic.

4.2.6 Recording rationale. This paragraph shall describe the approach to be followed for recording rationale that will be useful to the support agency for key decisions made on the project. It shall interpret the term "key decisions" for the project and state where the rationale are to be recorded. It shall cover all contractual clauses concerning this topic.

4.2.7 Access for acquirer review. This paragraph shall describe the approach to be followed for providing the acquirer or its authorized representative access to developer and subcontractor facilities for review of software products and activities. It shall cover all contractual clauses concerning this topic.

5. Plans for performing detailed software development activities. This section shall be divided into the following paragraphs. Provisions corresponding to non-required activities may be satisfied by the words "Not applicable." If different builds or different software on the project require different planning, these differences shall be noted in the paragraphs. The discussion of each activity shall include the approach (methods/procedures/tools) to be applied to: 1) the analysis or other technical tasks involved, 2) the recording of results, and 3) the preparation of associated deliverables, if applicable. The discussion shall also identify applicable risks/uncertainties and plans for dealing with them. Reference may be made to 4.2.1 if applicable methods are described there.

5.1 Project planning and oversight. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for project planning and oversight. The planning in each subparagraph shall cover all contractual clauses regarding the identified topic.

5.1.1 Software development planning (covering updates to this plan)
5.1.2 CSCI test planning
5.1.3 System test planning
5.1.4 Software installation planning
5.1.5 Software transition planning
5.1.6 Following and updating plans, including the intervals for management review

5.2 Establishing a software development environment. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for establishing, controlling, and maintaining a software development environment. The planning in each subparagraph shall cover all contractual clauses regarding the identified topic.

5.2.1 Software engineering environment
5.2.2 Software test environment
5.2.3 Software development library
5.2.4 Software development files
5.2.5 Non-deliverable software

5.3 System requirements analysis. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for participating in system requirements analysis. The planning in each subparagraph shall cover all contractual clauses regarding the identified topic.

5.3.1 Analysis of user input
5.3.2 Operational concept
5.3.3 System requirements

5.4 System design. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for participating in system design. The planning in each subparagraph shall cover all contractual clauses regarding the identified topic.

5.4.1 System-wide design decisions
5.4.2 System architectural design

5.5 Software requirements analysis. This paragraph shall describe the approach to be followed for software requirements analysis. The approach shall cover all contractual clauses concerning this topic.

5.6 Software design. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for software design. The planning in each subparagraph shall cover all contractual clauses regarding the identified topic.

5.6.1 CSCI-wide design decisions
5.6.2 CSCI architectural design
5.6.3 CSCI detailed design

5.7 Software implementation and unit testing. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for software implementation and unit testing. The planning in each subparagraph shall cover all contractual clauses regarding the identified topic.

5.7.1 Software implementation
5.7.2 Preparing for unit testing
5.7.3 Performing unit testing
5.7.4 Revision and retesting
5.7.5 Analyzing and recording unit test results

5.8 Unit integration and testing. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for unit integration and testing. The planning in each subparagraph shall cover all contractual clauses regarding the identified topic.

5.8.1 Preparing for unit integration and testing
5.8.2 Performing unit integration and testing
5.8.3 Revision and retesting
5.8.4 Analyzing and recording unit integration and test results

5.9 CSCI qualification testing. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for CSCI qualification testing. The planning in each subparagraph shall cover all contractual clauses regarding the identified topic.

5.9.1 Independence in CSCI qualification testing
5.9.2 Testing on the target computer system
5.9.3 Preparing for CSCI qualification testing
5.9.4 Dry run of CSCI qualification testing
5.9.5 Performing CSCI qualification testing
5.9.6 Revision and retesting
5.9.7 Analyzing and recording CSCI qualification test results

5.10 CSCI/HWCI integration and testing. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for participating in CSCI/HWCI integration and testing. The planning in each subparagraph shall cover all contractual clauses regarding the identified topic.

5.10.1 Preparing for CSCI/HWCI integration and testing
5.10.2 Performing CSCI/HWCI integration and testing
5.10.3 Revision and retesting
5.10.4 Analyzing and recording CSCI/HWCI integration and test results

5.11 System qualification testing. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for participating in system qualification testing. The planning in each subparagraph shall cover all contractual clauses regarding the identified topic.

5.11.1 Independence in system qualification testing
5.11.2 Testing on the target computer system
5.11.3 Preparing for system qualification testing
5.11.4 Dry run of system qualification testing
5.11.5 Performing system qualification testing
5.11.6 Revision and retesting
5.11.7 Analyzing and recording system qualification test results

5.12 Preparing for software use. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for preparing for software use. The planning in each subparagraph shall cover all contractual clauses regarding the identified topic.

5.12.1 Preparing the executable software
5.12.2 Preparing version descriptions for user sites
5.12.3 Preparing user manuals
5.12.4 Installation at user sites

5.13 Preparing for software transition. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for preparing for software transition. The planning in each subparagraph shall cover all contractual clauses regarding the identified topic.

5.13.1 Preparing the executable software
5.13.2 Preparing source files
5.13.3 Preparing version descriptions for the support site
5.13.4 Preparing the "as built" CSCI design and other software support information
5.13.5 Updating the system design description
5.13.6 Preparing support manuals
5.13.7 Transition to the designated support site

5.14 Software configuration management. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for software configuration management. The planning in each subparagraph shall cover all contractual clauses regarding the identified topic.

5.14.1 Configuration identification
5.14.2 Configuration control
5.14.3 Configuration status accounting
5.14.4 Configuration audits
5.14.5 Packaging, storage, handling, and delivery

5.15 Software product evaluation. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for software product evaluation. The planning in each subparagraph shall cover all contractual clauses regarding the identified topic.

5.15.1 In-process and final software product evaluations
5.15.2 Software product evaluation records, including items to be recorded
5.15.3 Independence in software product evaluation

5.16 Software quality assurance. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for software quality assurance. The planning in each subparagraph shall cover all contractual clauses regarding the identified topic.

5.16.1 Software quality assurance evaluations
5.16.2 Software quality assurance records, including items to be recorded
5.16.3 Independence in software quality assurance

5.17 Corrective action. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for corrective action. The planning in each subparagraph shall cover all contractual clauses regarding the identified topic.

5.17.1 Problem/change reports, including items to be recorded (candidate items include project name, originator, problem number, problem name, software element or document affected, origination date, category and priority, description, analyst assigned to the problem, date assigned, date completed, analysis time, recommended solution, impacts, problem status, approval of solution, follow-up actions, corrector, correction date, version where corrected, correction time, description of solution implemented)

5.17.2 Corrective action system

5.18 Joint technical and management reviews. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for joint technical and management reviews. The planning in each subparagraph shall cover al contractual clauses regarding the identified topic.

5.18.1 Joint technical reviews, including a proposed set of reviews
5.18.2 Joint management reviews, including a proposed set of reviews

5.19 Other software development activities. This paragraph shall be divided into the following subparagraphs to describe the approach to be followed for other software development activities. The planning in each subparagraph shall cover all contractual clauses regarding the identified topic.

5.19.1 Risk management, including known risks and corresponding strategies
5.19.2 Software management indicators, including indicators to be used
5.19.3 Security and privacy
5.19.4 Subcontractor management

5.19.5 Interface with software independent verification and validation (IV&V) agents
5.19.6 Coordination with associate developers
5.19.7 Improvement of project processes
5.19.8 Other activities not covered elsewhere in the plan

6. Schedules and activity network. This section shall present:

a. Schedule(s) identifying the activities in each build and showing initiation of each activity, availability of draft and final deliverables and other milestones, and completion of each activity

b. An activity network, depicting sequential relationships and dependencies among activities and identifying those activities that impose the greatest time restrictions on the project

7. Project organization and resources. This section shall be divided into the following paragraphs to describe the project organization and resources to be applied in each build.

7.1. Project organization. This paragraph shall describe the organizational structure to be used on the project, including the organizations involved, their relationships to one another, and the authority and responsibility of each organization for carrying out required activities.

7.2 Project resources. This paragraph shall describe the resources to be applied to the project. It shall include, as applicable:

a. Personnel resources, including:

1) The estimated staff-loading for the project (number of personnel over time)

2) The breakdown of the staff loading numbers by responsibility (for example, management, software engineering, software testing, software configuration management, software product evaluation, software quality assurance)

3) A breakdown of the skill levels, geographic locations, and security clearances of personnel performing each responsibility

b. Overview of developer facilities to be used, including geographic locations in which the work will be performed, facilities to be used, and secure areas and other features of the facilities as applicable to the contracted effort.

c. Acquirer-furnished equipment, software, services, documentation, data, and facilities required for the contracted effort. A schedule detailing when these items will be needed shall also be included.

d. Other required resources, including a plan for obtaining the resources, dates needed, and availability of each resource item.

8. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

A. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g., charts classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendixes may be bound as separate documents for ease in handling. Appendixes shall be lettered alphabetically (A, B, etc.).

END OF DI-IPSC-81427A

DATA ITEM DESCRIPTION

Title: SOFTWARE REQUIREMENTS SPECIFICATION (SRS)

Number: DI-IPSC-81433A
Approval Date: 19991215
AMSC Number: N7358
Limitation:
DTIC Applicable:
GIDEP Applicable:
Office of Primary Responsibility: NAVY/EC
Applicable Forms:
Use/ Relationships:

The Software Requirements Specification (SRS) specifies the requirements for a Computer Software Configuration Item (CSCI) and the methods to be used to ensure that each requirement has been met. Requirements pertaining to the CSCI's external interfaces may be presented in the SRS or in one or more Interface Requirements Specifications (IRSs) (DI-IPSC-81434A) referenced from the SRS.

The SRS, possibly supplemented by IRSs, is used as the basis for design and qualification testing of a CSCI.

This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by specific and discrete task requirements as delineated in the contract.

This DID is used when the developer is tasked to define and record the software requirements to be met by a CSCI.

Requirements pertaining to CSCI interfaces may be presented in the SRS or in IRSs.

This DID supersedes DI-IPSC-81433.

Requirements:

1. Reference documents. None.

2. General instructions.

a. Automated techniques. Use of automated techniques is encouraged. The term "document" in this DID means a collection of data regardless of its medium.

b. Alternate presentation styles. Diagrams, tables, matrices, and other presentation styles are acceptable substitutes for text when data required by this DID can be made more readable using these styles.

3. Format. Following are the format requirements.

The specification shall be in contractor format unless otherwise specified on the Contract Data Requirements List (CDRL)(DD 1423). The CDRL should specify whether deliverable data are to be delivered on paper or electronic media; are to be in a given electronic form (such as ASCII, CALS, or compatible with a specified word processor or other support software); may be delivered in developer format rather than in the format specified herein; and may reside in a computer-aided software engineering (CASE) or other automated tool rather than in the form of a traditional document.

4. Content. The specification shall contain the following:

a. Title page or identifier. The document shall include a title page containing, as applicable: document number; volume number; version/revision indicator; security markings or other restrictions on the handling of the document; date; document title; name, abbreviation, and any other identifier for the system, subsystem, or item to which the document applies; contract number; CDRL item number; organization for which the document has been prepared; name and address of the preparing organization; and distribution statement. For data in a database or other alternative form, this information shall be included on external and internal labels or by equivalent identification methods.

b. Table of contents. The document shall contain a table of contents providing the number, title, and page number of each titled paragraph, figure, table, and appendix. For data in a database or other alternative form, this information shall consist of an internal or external table of contents containing pointers to, or instructions for accessing, each paragraph, figure, table, and appendix or their equivalents.

c. Page numbering/labeling. Each page shall contain a unique page number and display the document number, including version, volume, and date, as applicable. For data in a database or other alternative form, files, screens, or other entities shall be assigned names or numbers in such a way that desired data can be indexed and accessed.

d. Response to tailoring instructions. If a paragraph is tailored out of this DID, the resulting document shall contain the corresponding paragraph number and title, followed by "This paragraph has been tailored out." For data in a database or other alternative form, this representation need occur only in the table of contents or equivalent.

e. Multiple paragraphs and subparagraphs. Any section, paragraph, or subparagraph in this DID may be written as multiple paragraphs or subparagraphs to enhance readability.

f. Standard data descriptions. If a data description required by this DID has been published in a standard data element dictionary specified in the contract, reference to an entry in that dictionary is preferred over including the description itself.

g. Substitution of existing documents. Commercial or other existing documents may be substituted for all or part of the document if they contain the required data.

The numbers shown designate the paragraph numbers to be used in the document.

1. Scope. This section shall be divided into the following paragraphs.

1.1 Identification. This paragraph shall contain a full identification of the system and the software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

1.2 System overview. This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarize the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

1.3 Document overview. This paragraph shall summarize the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Government stocking activities.

3. Requirements. This section shall be divided into the following paragraphs to specify the CSCI requirements, that is, those characteristics of the CSCI that are conditions for its acceptance. CSCI requirements are software requirements generated to satisfy the system requirements allocated to this CSCI. Each requirement shall be assigned a project-unique identifier to support testing and traceability and shall be stated n such a way that an objective test can be defined for it. Each requirement shall be annotated with associated qualification method(s) (see section 4) ad traceability to system (or subsystem, if applicable) requirements (see section 5.a) if not provided in those sections. The degree of detail to be provided shall be guided by the following rule: Include those characteristics of the CSCI that are conditions for CSCI acceptance; defer to design descriptions those characteristics that the acquirer is willing to leave up to the developer. If there are no requirements in a given paragraph, the paragraph shall so state. If a given requirement fits into more than one paragraph, it may be stated once and referenced from the other paragraphs.

3.1 Required states and modes. If the CSCI is required to operate in more than one state or mode having requirements distinct from other states or modes, this paragraph shall identify and define each state and mode. Examples of states and modes include idle, ready, active, post-use analysis, training, degraded, emergency, backup, wartime, peacetime. The distinction between states and modes is arbitrary. A CSCI may be described in terms of states only, modes only, states within modes, modes within states, or any other scheme that is useful. If no states or modes are required, this paragraph shall so state, without the need to create artificial distinctions. If states and/or modes are required, each requirement or group of requirements in this specification shall be correlated to the states and modes. The correlation may be indicated by a table or other method in this paragraph, in an appendix referenced from this paragraph or by annotation of the requirements in the paragraphs where they appear.

3.2 CSCI capability requirements. This paragraph shall be divided into subparagraphs to itemize the requirements associated with each capability of the CSCI. A "capability" is defined as a group of related requirements. The word "capability" may be replaced with "function," "subject," "object," or other term useful for presenting the requirements.

3.2.x (CSCI capability). This paragraph shall identify a required CSCI capability and shall itemize the requirements associated with the capability. If the capability can be more clearly specified by dividing it into constituent capabilities, the constituent capabilities shall be specified in subparagraphs. The requirements shall specify required behavior of the CSCI and shall include applicable parameters, such as response times, throughput times, other timing constraints, sequencing, accuracy, capacities (how much/how many), priorities, continuous operation requirements, and allowable deviations based on operating conditions. The requirements shall include, as applicable, required behavior under unexpected, unallowed, or "out of bounds" conditions, requirements for error handling, and any provisions to be incorporated into the CSCI to provide continuity of operations in the event of emergencies. Paragraph 3.3.x of this DID provides a list of topics to be considered when specifying requirements regarding inputs the CSCI must accept and outputs it must produce.

3.3 CSCI external interface requirements. This paragraph shall be divided into subparagraphs to specify the requirements, if any, for the CSCI's external interfaces. This paragraph may reference one or more Interface Requirements Specifications (IRSs) or other documents containing these requirements.

3.3.1 Interface identification and diagrams. This paragraph shall identify the required external interfaces of the CSCI (that is, relationships with other entities that involve sharing, providing or exchanging data). The identification of each interface shall include a project-unique identifier and shall designate the interfacing entities (systems, configuration items, users, etc.) by name, number, version, and documentation references, as applicable. The identification shall state which entities have fixed interface characteristics (and therefore impose interface requirements on interfacing entities) and which are being developed or modified (thus having interface requirements imposed on them). One or more interface diagrams shall be provided to depict the interfaces.

3.3.x (Project-unique identifier of interface). This paragraph (beginning with 3.3.2) shall identify a CSCI external interface by project-unique identifier, shall briefly identify the interfacing entities, and shall be divided into subparagraphs as needed to state the requirements imposed on the CSCI to achieve the interface. Interface characteristics of the other entities involved in the interface shall be stated as assumption or as "When [the entity not covered] does this, the CSCI shall...," not as requirements on the other entities. This paragraph may reference other documents (such as data dictionaries, standards for communication protocols, and standards for user interfaces) in place of stating the information here. The requirements shall include the following, as applicable, presented in any order suited to the requirements, and shall note any differences in these characteristics from the point of view of the interfacing entities (such as different expectations about the size, frequency, or other characteristics of data elements):

a. Priority that the CSCI must assign the interface

b. Requirements on the type of interface (such as real-time data transfer, storage-and-retrieval of data, etc.) to be implemented

c. Required characteristics of individual data elements that the CSCI must provide, store, send, access, receive, etc., such as:

1) Names/identifiers

a) Project-unique identifier

b) Non-technical (natural-language) name

c) DOD standard data element name

d) Technical name (e.g., variable or field name in code or database)

e) Abbreviation or synonymous names

2) Data type (alphanumeric, integer, etc.)

3) Size and format (such as length and punctuation of a character string)

4) Units of measurement (such as meters, dollars, nanoseconds)

5) Range or enumeration of possible values (such as 0-99)

6) Accuracy (how correct) and precision (number of significant digits)

7) Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the data element may be updated and whether business rules apply

8) Security and privacy constraints

9) Sources (setting/sending entities) and recipients (using/receiving entities)

d. Required characteristics of data element assemblies (records, messages, files, arrays, displays, reports, etc.) that the CSCI must provide, store, send, access, receive, etc., such as:

1) Names/identifiers

a) Project-unique identifier

b) Non-technical (natural language) name

c) Technical name (e.g., record or data structure name in code or database)

d) Abbreviations or synonymous names

2) Data elements in the assembly and their structure (number, order, grouping)

3) Medium (such as disk) and structure of data elements/assemblies on the medium

4) Visual and auditory characteristics of displays and other outputs (such as colors, layouts, fonts, icons and other display elements, beeps, lights)

5) Relationships among assemblies, such as sorting/access characteristics

6) Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the assembly may be updated and whether business rules apply

7) Security and privacy constraints

8) Sources (setting/sending entities) and recipients (using/receiving entities)

e. Required characteristics of communication methods that the CSCI must use for the interface, such as:

1) Project-unique identifier(s)

2) Communication links/bands/frequencies/media and their characteristics

3) Message formatting

4) Flow control (such as sequence numbering and buffer allocation)

5) Data transfer rate, whether periodic/aperiodic, and interval between transfers

6) Routing, addressing, and naming conventions

7) Transmission services, including priority and grade

8) Safety/security/privacy considerations, such as encryption, user authentication, compartmentalization, and auditing

f. Required characteristics of protocols the CSCI must use for the interface, such as:

1) Project-unique identifier(s)

2) Priority/layer of the protocol

3) Packeting, including fragmentation and reassembly, routing, and addressing

4) Legality checks, error control, and recovery procedures

5) Synchronization, including connection establishment, maintenance, termination

6) Status, identification, and any other reporting features

g. Other required characteristics, such as physical compatibility of the interfacing entities (dimensions, tolerances, loads, plug compatibility, etc.), voltages, etc.

3.4 CSCI internal interface requirements. This paragraph shall specify the requirements, if any, imposed on interfaces internal to the CSCI. If all internal interfaces are left to the design, this fact shall be so stated. If such requirements are to be imposed, paragraph 3.3 of this DID provides a list of topics to be considered.

3.5 CSCI internal data requirements. This paragraph shall specify the requirements, if any, imposed on data internal to the CSCI. Included shall be requirements, if any, on databases and data files to be included in the CSCI. If all decisions about internal data are left to the design, this fact shall be so stated. If such requirements are to be imposed, paragraphs 3.3.x.c and 3.3.x.d of this DID provide a list of topics to be considered.

3.6 Adaptation requirements. This paragraph shall specify the requirements, if any, concerning installation-dependent data to be provided by the CSCI (such as site-dependent latitude and longitude or site-dependent state tax codes) and operational parameters that the CSCI is required to use that may vary according to operational needs (such as parameters indicating operation-dependent targeting constants or data recording).

3.7 Safety requirements. This paragraph shall specify the CSCI requirements, if any, concerned with preventing or minimizing unintended hazards to personnel, property, and the physical environment. Examples include safeguards the CSCI must provide to prevent inadvertent actions (such as accidentally issuing an "auto pilot off" command) and non-actions (such as failure to issue an intended "auto pilot off" command). This paragraph shall include the CSCI requirements, if any, regarding nuclear components of the system, including, as applicable, prevention of inadvertent detonation and compliance with nuclear safety rules.

3.8 Security and privacy requirements. This paragraph shall specify the CSCI requirements, if any, concerned with maintaining security and privacy. These requirements shall include, as applicable, the security/privacy environment in which the CSCI must operate, the type and degree of security or privacy to be provided, the security/privacy risks the CSCI must withstand, required safeguards to reduce those risks, the security/privacy policy that must be met, the security/privacy accountability the CSCI must provide, and the criteria that must be met for security/privacy certification/accreditation.

3.9 CSCI environment requirements. This paragraph shall specify the requirements, if any, regarding the environment in which the CSCI must operate. Examples include the computer hardware and operating system on which the CSCI must run. (Additional requirements concerning computer resources are given in the next paragraph.)

3.10 Computer resource requirements. This paragraph shall be divided into the following subparagraphs.

3.10.1 Computer hardware requirements. This paragraph shall specify the requirements, if any, regarding computer hardware that must be used by the CSCI. The requirements shall include, as applicable, number of each type of equipment, type, size, capacity, and other required characteristics of processors, memory, input/output devices, auxiliary storage, communications/network equipment, and other required equipment.

3.10.2 Computer hardware resource utilization requirements. This paragraph shall specify the requirements, if any, on the CSCI's computer hardware resource utilization, such as maximum allowable use of processor capacity, memory capacity, input/output device capacity, auxiliary storage device capacity, and communications/network equipment capacity. The requirements (stated, for example, as percentages of the capacity of each computer hardware resource) shall include the conditions, if any, under which the resource utilization is to be measured.

3.10.3 Computer software requirements. This paragraph shall specify the requirements, if any, regarding computer software that must be used by, or incorporated into, the CSCI. Example including operating systems, database management systems, communications/network software, utility software, input and equipment simulators, test software, and manufacturing software. The correct nomenclature, version, and documentation references of each such software item shall be provided.

3.10.4 Computer communications requirements. This paragraph shall specify the additional requirements, if any, concerning the computer communications that must be used by the CSCI. Examples include geographic locations to be linked; configuration and network topology; transmission techniques; data transfer rates; gateways; required system use times; type and volume of data to be transmitted/received; time boundaries for transmission/reception/response; peak volumes of data; and diagnostic features.

3.11 Software quality factors. This paragraph shall specify the CSCI requirements, if any, concerned with software quality factors identified in the contract or derived from a higher level specification. Examples include quantitative requirements regarding CSCI functionality (the ability to perform all required functions), reliability (the ability to perform with correct, consistent results), maintainability (the ability to b easily corrected), availability (the ability to be accessed and operated when needed), flexibility (the ability to be easily adapted to changing requirements), portability (the ability to be easily modified for a new environment), reusability (the ability to be used in multiple applications), testability (the ability to be easily and thoroughly tested), usability (the ability to be easily learned and used), and other attributes.

3.12 Design and implementation constraints. This paragraph shall specify the requirements, if any, that constrain the design and implementation of the CSCI. These requirements may be specified by reference to appropriate commercial or military standards and specifications. Examples include requirements concerning:

a. Use of a particular CSCI architecture or requirements on the architecture, such as required databases or other software units; use of standard, military, or existing components; or use of Government/acquirer-furnished property (equipment, information, or software)

b. Use of particular design or implementation standards; use of particular data standards; use of a particular programming language

c. Flexibility and expandability that must be provided to support anticipated areas of growth or changes in technology, threat, or mission

3.13 Personnel-related requirements. This paragraph shall specify the CSCI requirements, if any, included to accommodate the number, skill levels, duty cycles, training needs, or other information about the personnel who will use or support the CSCI. Examples include requirements for number of simultaneous users and for built-up help or training features. Also included shall be the human factors engineering requirements, if any, imposed on the CSCI. These requirements shall include, as applicable, considerations for the capabilities and limitations of humans; foreseeable human errors under both normal and extreme conditions; and specific areas where the effects of human error wold be particularly serious. Examples include requirements for color and duration of error messages, physical placement of critical indicators or keys, and use of auditory signals.

3.14 Training-related requirements. This paragraph shall specify the CSCI requirements, if any, pertaining to training. Examples include training software to be included in the CSCI.

3.15 Logistics-related requirements. This paragraph shall specify the CSCI requirements, if any, concerned with logistics considerations. These considerations may include: system maintenance, software support, system transportation modes, supply-system requirements, impact on existing facilities, and impact on existing equipment.

3.16 Other requirements. This paragraph shall specify additional CSCI requirements, if any, not covered in the previous paragraphs.

3.17 Packaging requirements. This section shall specify the requirements, if any, for packaging, labeling, and handling the CSCI for delivery (for example, delivery on 8 track magnetic tape labeled and packaging in a certain way). Applicable military specifications and standards may be referenced if appropriate.

3.18 Precedence and criticality of requirements. This paragraph shall specify, if applicable, the order of precedence, criticality, or assigned weights indicating the relative importance of the requirements in this specification. Examples include identifying those

requirements deemed critical to safety, to security, or to privacy for purposes of singling them out for special treatment. If all requirements have equal weight, this paragraph shall so state.

4. Qualification provisions. This section shall define a set of qualification methods and shall specify for each requirement in Section 3 the method(s) to be used to ensure that the requirement has been met. A table may be used to present this information, or each requirement in Section 3 may be annotated with the method(s) to be used. Qualification methods may include:

a. Demonstration: The operation of the CSCI, or a part of the CSCI that relies on observable functional operation not requiring the use of instrumentation, special test equipment, or subsequent analysis.

b. Test: The operation of the CSCI, or a part of the CSCI, using instrumentation or other special test equipment to collect data for later analysis.

c. Analysis: The processing of accumulated data obtained from other qualification methods. Examples are reduction, interpretation, or extrapolation of test results.

d. Inspection: The visual examination of CSCI code, documentation, etc.

e. Special qualification methods: Any special qualification methods for the CSCI, such as special tools, techniques, procedures, facilities, and acceptance limits.

5. Requirements traceability. This paragraph shall contain:

a. Traceability from each CSCI requirement in this specification to the system (or subsystem, if applicable) requirements it addresses. (Alternatively, this traceability may be provided by annotating each requirement in Section 3.)

Note: Each level of system refinement may result in requirements not directly traceable to higher-level requirements. For example, a system architectural design that creates multiple CSCIs may result in requirements about how the CSCIs will interface, even though these interfaces are not covered in system requirements. Such requirements may be traced to a general requirement such as "system implementation" or to the system design decisions that resulted in their generation.

b. Traceability from each system (or subsystem, if applicable) requirement allocated to this CSCI to the CSCI requirements that address it. All system (subsystem) requirements allocated to this CSCI shall be accounted for. Those that trace to CSCI requirements contained in IRSs shall reference those IRSs.

6. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g., charts, classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendixes may be bound as separate documents for ease in handling. Appendixes shall be lettered alphabetically (A, B, etc.).

END OF DI-IPSC-81433A.

DATA ITEM DESCRIPTION

Title: INTERFACE REQUIREMENTS SPECIFICATION (IRS)

Number: DI-IPSC-81434A
AMSC Number: N7359
DTIC Applicable: No
Office of Primary Responsibility: NAVY/EC
Applicable Forms:
Use, Relationships:

Approval Date: 19991215
Limitation:
GIDEP Applicable:

The Interface Requirements Specification (IRS) specifies the requirements imposed on one or more systems, subsystems, Hardware Configuration Items (HWCIs), Computer Software Configuration Items (CSCIs), manual operations, or other system components to achieve one or more interfaces among these entities. An IRS can cover any number of interfaces.

The IRS can be used to supplement the System/Subsystem Specification (SSS) (DI-IPSC-81431A) and Software Requirements Specification (SRS) (DI-IPSC-81433A) as the basis for design and qualification of testing of systems and CSCIs.

This DID contains the format and content preparation instructions for the data product generated by specific and discrete task requirements as delineated in the contract.

This DID is used when the developer is tasked to define and record the interface requirements for one or more systems, subsystems, HWCIs, CSCIs, manual operations, or other system components.

The IRS can be used to supplement the SSS and the SRS.

This DID supersedes DI-IPSC-81434.

Requirements:

1. Reference documents. None.

2. General instructions.

a. Automated techniques. Use of automated techniques is encouraged. The term "document" in this DID means a collection of data regardless of its medium.

b. Alternate presentation styles. Diagrams, tables, matrices, and other presentation styles are acceptable substitutes for text when data required by this DID can be made more readable using these styles.

3. Format. Following are the format requirements.

The specification shall be in contractor format unless otherwise specified on the Contract Data Requirements List (CDRL)(DD 1423). The CDRL should specify whether deliverable data are to be delivered on paper or electronic media; are to be in a given electronic form (such as ASCII, CALS, or compatible with a specified word processor or other support software); may be delivered in developer format rather than in the format specified herein; and may reside in a computer-aided software engineering (CASE) or other automated tool rather than in the form of a traditional document.

4. Content. The specification shall contain the following:

a. Title page or identifier. The document shall include a title page containing, as applicable: document number; volume number; version/revision indicator; security markings or other restrictions on the handling of the document; date; document title; name, abbreviation, and any other identifier for the system, subsystem, or item to which the document applies; contract number; CDRL item number; organization for which the document has been prepared; name and address of the preparing organization; and distribution statement. For data in a database or other alternative form, this information shall be included on external and internal labels or by equivalent identification methods.

b. Table of contents. The document shall contain a table of contents providing the number, title, and page number of each titled paragraph, figure, table, and appendix. For data in a database or other alternative form, this information shall consist of an internal or external table of contents containing pointers to, or instructions for accessing, each paragraph, figure, table, and appendix or their equivalents.

c. Page numbering/labeling. Each page shall contain a unique page number and display the document number, including version, volume, and date, as applicable. For data in a database or other alternative form, files, screens, or other entities shall be assigned names or numbers in such a way that desired data can be indexed and accessed.

d. Response to tailoring instructions. If a paragraph is tailored out of this DID, the resulting document shall contain the corresponding paragraph number and title, followed by "This paragraph has been tailored out." For data in a database or other alternative form, this representation need occur only in the table of contents or equivalent.

e. Multiple paragraphs and subparagraphs. Any section, paragraph, or subparagraph in this DID may be written as multiple paragraphs or subparagraphs to enhance readability.

f. Standard data descriptions. If a data description required by this DID has been published in a standard data element dictionary specified in the contract, reference to an entry in that dictionary is preferred over including the description itself.

g. Substitution of existing documents. Commercial or other existing documents may be substituted for all or part of the document if they contain the required data.

The numbers shown designate the paragraph numbers to be used in the document.

1. Scope. This section shall be divided into the following paragraphs.

1.1 Identification. This paragraph shall contain a full identification of the system and the software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

1.2 System overview. This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarize the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

1.3 Document overview. This paragraph shall summarize the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Government stocking activities.

3. Requirements. This section shall be divided into the following paragraphs to specify the requirements imposed on one or more systems, subsystems, configuration items, manual operations, or other system components to achieve one or more interfaces among these entities. Each requirement shall be assigned a project-unique identifier to support testing and traceability and shall be stated in such a way that an objective test can be defined for it. Each requirement shall be annotated with associated qualification method(s) (see section 4) and traceability to system (or subsystem, if applicable) requirements (see section 5.a) if not provided in those sections. The degree of detail to be provided shall be guided by the following rule: Include those characteristics of the interfacing entities that are conditions for their acceptance; defer to design descriptions those characteristics that the acquirer is willing to leave up to the developer. If a given requirement fits into more than one paragraph, it may be stated once and referenced from the other paragraphs. If an interfacing entity included in this specification will operate in states and/or modes having interface requirements different from other states and modes, each requirement or group of requirements for that entity shall be correlated to the states and modes. The correlation may be indicated by a table or other method in this paragraph, in an appendix referenced from this paragraph, or by annotation of the requirements in the paragraphs where they appear.

3.1 Interface identification and diagrams. For each interface identified in 1.1, this paragraph shall include a project-unique identifier and shall designate the interfacing entities (systems, configuration items, users, etc.) by name, number, version, and documentation references, as applicable. The identification shall state which entities have fixed interface characteristics (and therefore impose interface requirements on interfacing entities) and which are being developed or modified (thus having interface requirements imposed on them). One or more interface diagrams shall be provided to depict the interfaces.

3.x (Project–unique identifier of interface). This paragraph (beginning with 3.2) shall identify an interface by project-unique identifier, shall briefly identify the interfacing entities, and shall be divided into subparagraphs as needed to state the requirements imposed on one or more of the interfacing entities to achieve the interface. If the interface characteristics of an entity are not covered by this IRS but need to be mentioned to specify the requirements for entities that are, those characteristics shall be stated as assumptions or as "When [the entity not covered] does this, the [entity being specified] shall...," rather than as requirements on the entities not covered by this IRS. This paragraph may reference other documents (such as data dictionaries, standards for communication protocols, and standards for user interfaces) in place of stating the information here. The requirements shall include the following, as applicable, presented in any order suited to the requirements, and shall note any differences in these characteristics from the point of view of the interfacing entities (such as different expectations about the size, frequency, or other characteristics of data elements):

a. Priority that the interfacing entity(ies) must assign the interface

b. Requirements on the type of interface (such as real-time data transfer, storage-and-retrieval of data, etc.) to be implemented

c. Required characteristics of individual data elements that the interfacing entity(ies) must provide, store, send, access, receive, etc., such as:

1) Names/identifiers

a) Project-unique identifier

b) Non-technical (natural-language) name

c) DOD standard data element name

d) Technical name (e.g., variable or field name in code or database)

e) Abbreviation or synonymous names

2) Data type (alphanumeric, integer, etc.)

3) Size and format (such as length and punctuation of a character string)

4) Units of measurement (such as meters, dollars, nanoseconds)

5) Range or enumeration of possible values (such as 0-99)

6) Accuracy (how correct) and precision (number of significant digits)

7) Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the data element may be updated and whether business rules apply

8) Security and privacy constraints

9) Sources (setting/sending entities) and recipients (using/receiving entities)

d. Required characteristics of data element assemblies (records, messages, files, arrays, displays, reports, etc.) that the interfacing entity(ies) must provide, store, send, access, receive, etc., such as:

1) Names/identifiers

a) Project-unique identifier

b) Non-technical (natural language) name

c) Technical name (e.g., record or data structure name in code or database)

d) Abbreviations or synonymous names

2) Data elements in the assembly and their structure (number, order, grouping)

3) Medium (such as disk) and structure of data elements/assemblies on the medium

4) Visual and auditory characteristics of displays and other outputs (such as colors, layouts, fonts, icons and other display elements, beeps, lights)

5) Relationships among assemblies, such as sorting/access characteristics

6) Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the assembly may be updated and whether business rules apply

7) Security and privacy constraints

8) Sources (setting/sending entities) and recipients (using/receiving entities)

e. Required characteristics of communication methods that the interfacing entity(ies) must use for the interface, such as:

1) Project-unique identifier(s)

2) Communication links/bands/frequencies/media and their characteristics

3) Message formatting

4) Flow control (such as sequence numbering and buffer allocation

5) Data transfer rate, whether periodic/aperiodic, and interval between transfers

6) Routing, addressing, and naming conventions

7) Transmission services, including priority and grade

8) Safety/security/privacy considerations, such as encryption, user authentication, compartmentalization, and auditing

f. Required characteristics of protocols the interfacing entity(ies) must use for the interface, such as:

1) Project-unique identifier(s)

2) Priority/layer of the protocol

3) Packeting, including fragmentation and reassembly, routing, and addressing

4) Legality checks, error control, and recovery procedures

5) Synchronization, including connection establishment, maintenance, termination

6) Status, identification, and any other reporting features

g. Other required characteristics, such as physical compatibility of the interfacing entities (dimensions, tolerances, loads, plug compatibility, etc.), voltages, etc.

3.y Precedence and criticality of requirements. This paragraph shall be numbered as the last paragraph in Section 3 and shall specify, if applicable, the order of precedence, criticality, or assigned weights indicating the relative importance of the requirements in this specification. Examples include identifying those requirements deemed critical to safety, to security, or to privacy for purposes of singling them out for special treatment. If all requirements have equal weight, this paragraph shall so state.

4. Qualification provisions. This section shall define a set of qualification methods and shall specify, for each requirement in Section 3, the qualification method(s) to be used to ensure that the requirement has been met. A table may be used to present this information, or each requirement in Section 3 may be annotated with the method(s) to be used. Qualification methods may include:

a. Demonstration: The operation of interfacing entities that relies on observable functional operation not requiring the use of instrumentation, special test equipment, or subsequent analysis.

b. Test: The operation of interfacing entities using instrumentation or special test equipment to collect data for later analysis.

c. Analysis: The processing of accumulated data obtained from other qualification methods. Examples are reduction, interpretation, or extrapolation of test results.

d. Inspection: The visual examination of interfacing entities, documentation, etc.

e. Special qualification methods: Any special qualification methods for the interfacing entities, such as special tools, techniques, procedures, facilities, and acceptance limits.

5. Requirements traceability. For system-level interfacing entities, this paragraph does not apply. For each subsystem-or lower-level interfacing entity covered by this IRS, this paragraph shall contain:

a. Traceability from each requirement imposed on the entity in this specification to the system (or subsystem, if applicable) requirements it addresses. (Alternatively, this traceability may be provided by annotating each requirement in Section 3.)

Note: Each level of system refinement may result in requirements not directly traceable to higher-level requirements. For example, a system architectural design that creates multiple CSCIs may result in requirements about how the CSCIs will interface, even though these interfaces are not covered in system requirements. Such requirements may be traced to a general requirement such as "system implementation" or to the system design decisions that resulted in their generation.

b. Traceability from each system (or subsystem, if applicable) requirement that has been allocated to the interfacing entity and that affects an interface covered in this specification to the requirements in this specification that address it.

6. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

A. Appendixes. Appendixes may be used to provide information published separately for convenience in document maintenance (e.g., charts, classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendixes may be bound as separate documents for ease in handling. Appendixes shall be lettered alphabetically (A, B, etc.).

END OF DI-IPSC-81434A.

DATA ITEM DESCRIPTION

Title: SOFTWARE DESIGN DESCRIPTION (SDD)

Number: DI-IPSC-81435A
Approval Date: 19991215
AMSC Number: N7360
Limitation:
DTIC Applicable:
GIDEP Applicable:
Office of Primary Responsibility: NAVY/EC
Applicable Forms:
Use, Relationships:

The Software Design Description (SDD) describes the design of a Computer Software Configuration Item (CSCI). It describes the CSCI-wide design decisions, the CSCI architectural design, and the detailed design needed to implement the software. The SDD may be supplemented by Interface Design Descriptions (IDDs) (DI-IPSC-81436) and Database Design Descriptions (DBDDs) (DI-ISC-81437) as described below.

The SDD, with its associated IDDs and DBDDs, is used as the basis for implementing the software. It provides the acquirer visibility into the design and provides information needed for software support.

This DID contains the format and content preparation instructions for the data product generated by specific and discrete task requirements as delineated in the contract.

This DID is used when the developer is tasked to define and record the design of a CSCI.

Design pertaining to interfaces may be presented in the SDD or in IDDs. Design pertaining to databases may be presented in the SDD or DBDDs.

This DID supersedes DI-IPSC-81435.

Requirements:

1. Reference documents. None.

2. General instructions.

    a. Automated techniques. Use of automated techniques is encouraged. The term "document" in this DID means a collection of data regardless of its medium.

    b. Alternate presentation styles. Diagrams, tables, matrices, and other presentation styles are acceptable substitutes for text when data required by this DID can be made more readable using these styles.

3. Format. Following are the format requirements.

The description shall be in contractor format unless otherwise specified on the Contract Data Requirements List (CDRL)(DD 1423). The CDRL should specify whether deliverable data are to be delivered on paper or electronic media; are to be in a given electronic form (such as ASCII, CALS, or compatible with a specified word processor or other support software); may be delivered in developer format rather than in the format specified herein; and may reside in a computer-aided software engineering (CASE) or other automated tool rather than in the form of a traditional document.

4. Content. The description shall contain the following:

a. Title page or identifier. The document shall include a title page containing, as applicable: document number; volume number; version/revision indicator; security markings or other restrictions on the handling of the document; date; document title; name, abbreviation, and any other identifier for the system, subsystem, or item to which the document applies; contract number; CDRL item number; organization for which the document has been prepared; name and address of the preparing organization; and distribution statement. For data in a database or other alternative form, this information shall be included on external and internal labels or by equivalent identification methods.

b. Table of contents. The document shall contain a table of contents providing the number, title, and page number of each titled paragraph, figure, table, and appendix. For data in a database or other alternative form, this information shall consist of an internal or external table of contents containing pointers to, or instructions for accessing, each paragraph, figure, table, and appendix or their equivalents.

c. Page numbering/labeling. Each page shall contain a unique page number and display the document number, including version, volume, and date, as applicable. For data in a database or other alternative form, files, screens, or other entities shall be assigned names or numbers in such a way that desired data can be indexed and accessed.

d. Response to tailoring instructions. If a paragraph is tailored out of this DID, the resulting document shall contain the corresponding paragraph number and title, followed by "This paragraph has been tailored out." For data in a database or other alternative form, this representation need occur only in the table of contents or equivalent.

e. Multiple paragraphs and subparagraphs. Any section, paragraph, or subparagraph in this DID may be written as multiple paragraphs or subparagraphs to enhance readability.

f. Standard data descriptions. If a data description required by this DID has been published in a standard data element dictionary specified in the contract, reference to an entry in that dictionary is preferred over including the description itself.

g. Substitution of existing documents. Commercial or other existing documents may be substituted for all or part of the document if they contain the required data.

The numbers shown designate the paragraph numbers to be used in this document.

1. Scope. This section shall be divided into the following paragraphs.

1.1 Identification. This paragraph shall contain a full identification of the system and the software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

1.2 System overview. This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarize the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

1.3 Document overview. This paragraph shall summarize the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Government stocking activities.

3. CSCI-wide design decisions. This section shall be divided into paragraphs as needed to present CSCI-wide design decisions, that is, decisions about the CSCI's behavioral design (how it will behave, from a user's point of view, in meeting its requirements, ignoring internal implementation) and other decisions affecting the selection and design of the software units that make up the CSCI. If all such decisions are explicit in the CSCI requirements or are deferred to the design of the CSCI's software units, this section shall so state. Design decisions that respond to requirements designated critical, such as those for safety, security, or privacy, shall be placed in separate paragraphs. If a design decision depends upon system states or modes, this dependency shall be indicated. Design conventions needed to understand the design shall be presented or referenced. Examples of CSCI-wide design decisions are the following:

a. Design decisions regarding inputs the CSCI will accept and outputs it will produce, including interfaces with other systems, HWCIs, CSCIs, and users (4.3.x of this DID identifies topics to be considered in this description). If part or all of this information is given in Interface Design Descriptions (IDDs), they may be referenced.

b. Design decisions on CSCI behavior in response to each input or condition, including actions the CSCI will perform, response times and other performance characteristics, description of physical systems modeled, selected equations/algorithms/rules, and handling of unallowed inputs or conditions.

c. Design decisions on how databases/date files will appear to the user (4.3.x of this DID identifies topics to be considered in this description). If part or all of this information is given in Database Design Descriptions (DBDDs), they may be referenced.

d. Selected approach to meeting safety, security, and privacy requirements.

e. Other CSCI-wide design decisions made in response to requirements, such as selected approach to providing required flexibility, availability, and maintainability.

4. CSCI architectural design. This section shall be divided into the following paragraphs to describe the CSCI architectural design. If part or all of the design depends upon system states or modes, this dependency shall be indicated. If design information falls into more than one paragraph, it may be presented once and referenced from the other paragraphs. Design conventions needed to understand the design shall be presented or referenced.

4.1 CSCI components. This paragraph shall:

a. Identify the software units that make up the CSCI. Each software unit shall be assigned a project-unique identifier.

Note: A software unit is an element in the design of a CSCI; for example, a major subdivision of a CSCI, a component of that subdivision, a class, object, module, function, routine, or database. Software units may occur at different levels of a hierarchy and may consist of other software units. Software units in the design may or may not have a one-to-one relationship with the code and data entities (routines, procedures, databases, data files, etc.) that implement them or with the computer files containing those entities. A database may be treated as CSCI or as a software unit. The SDD may refer to software units by any name(s) consistent with the design methodology being used.

b. Show the static (such as "consists of") relationship(s) of the software units. Multiple relationships may be presented, depending on the selected software design methodology (for example, in an object-oriented design, this paragraph may present the class and object structures as well as the module and process architectures of the CSCI).

c. State the purpose of each software unit and identify the CSCI requirements and CSCI-wide design decisions allocated to it. (Alternatively, the allocation of requirements may be provided in 6.a.).

d. Identify each software unit's development status/type (such as new development, existing design or software to be reused as is, existing design or software to be reengineered, software to be developed for reuse, software planned for Build N, etc.) For existing design or software, the description shall provide identifying information, such as name, version, documentation references, library, etc.

e. Describe the CSCI's (and as applicable, each software unit's) planned utilization of computer hardware resources (such as processor capacity, memory capacity, input/output device capacity, auxiliary storage capacity, and communications/network equipment capacity). The description shall cover all computer hardware resources included in resource utilization requirements for the CSCI, in system-level resource allocations affecting the CSCI, and in resource utilization measurement planning in the Software Development Plan. If all utilization data for a given computer hardware resource are presented in a single location, such as in one

SDD, this paragraph may reference that source. Included for each computer hardware resource shall be:

1) The CSCI requirements or system-level resource allocations being satisfied

2) The assumptions and conditions on which the utilization data are based (for example, typical usage, worst-case usage, assumption of certain events)

3) Any special considerations affecting the utilization (such as use of virtual memory, overlays, or multiprocessors or the impacts of operating system overhead, library software, or other implementation overhead)

4) The units of measure used (such as percentage of processor capacity, cycles per second, bytes of memory, kilobytes per second)

5) The level(s) at which the estimates or measures will be made (such as software unit, CSCI, or executable program)

f. Identify the program library in which the software that implements each software unit is to be placed.

4.2 Concept of execution. This paragraph shall describe the concept of execution among the software units. It shall include diagrams and descriptions showing the dynamic relationship of the software units, that is, how they will interact during CSCI operation, including, as applicable, flow of execution control, data flow, dynamically controlled sequencing, state transition diagrams, priorities among units, handling of interrupts, timing/sequencing relationships, exception handling, concurrent execution, dynamic allocation/deallocation, dynamic creation/deletion of objects, processes, tasks, and other aspects of dynamic behavior.

4.3 Interface design. This paragraph shall be divided into the following subparagraphs to describe the interface characteristics of the software units. It shall include both interfaces among the software units and their interfaces with external entities such a systems, configuration items, and users. If part or all of this information is contained in Interface Design Descriptions (IDDs), in section 5 of the SDD, or elsewhere, these sources may be referenced.

4.3.1 Interface identification and diagrams. This paragraph shall state the project-unique identifier assigned to each interface and shall identify the interfacing entities (software units, systems, configuration items, users, etc.) by name, number, version, and documentation references, as applicable. The identification shall state which entities have fixed interface characteristics (and therefore impose interface requirements on interfacing entities) and which are being developed or modified (thus having interface requirements imposed on them). One or more interface diagrams shall be provided, as appropriate, to depict the interfaces.

4.3.x (Project-unique identifier of interface). This paragraph (beginning with 4.3.2) shall identify an interface by project-unique identifier, shall briefly identify the interfacing entities, and shall be divided into subparagraphs as needed to describe the interface

characteristics of one or both of the interfacing entities. If a given interfacing entity is not covered by this SDD (for example, an external system) but its interface characteristics need to be mentioned to describe interfacing entities that are, these characteristics shall be stated as assumptions or as "When [the entity not covered] does this, [the entity that is covered] will ...." This paragraph may reference other documents (such as data dictionaries, standards for protocols, and standards for user interfaces) in place of stating the information here. The design description shall include the following, as applicable, presented in any order suited to the information to be provided, and shall note any differences in these characteristics from the point of view of the interfacing entities (such as different expectations about the size, frequency, or other characteristics of data elements):

a. Priority assigned to the interface by the interfacing entity (ies)

b. Type of interface (such as real-time data transfer, storage-and-retrieval of data, etc.) to be implemented

c. Characteristics of individual data elements that the interfacing entity (ies) will provide, store, send, access, receive, etc., such as:

1) Names/identifiers

a) Project-unique identifier

b) Non-technical (natural-language) name

c) DOD standard data element name

d) Technical name (e.g., variable or field name in code or database)

e) Abbreviation or synonymous names

2) Data type (alphanumeric, integer, etc.)

3) Size and format (such as length and punctuation of a character string)

4) Units of measurement (such as meters, dollars, nanoseconds)

5) Range or enumeration of possible values (such as 0-99)

6) Accuracy (how correct) and precision (number of significant digits)

7) Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the data element may be updated and whether business rules apply

8) Security and privacy constraints

9) Sources (setting/sending entities) and recipients (using/receiving entities)

d. Characteristics of data element assemblies (records, messages, files, arrays, displays, reports, etc.) that the interfacing entity (ies) will provide, store, send, access, receive, etc., such as:

1) Names/identifiers

a) Project-unique identifier

b) Non-technical (natural language) name

c) Technical name (e.g., record or data structure name in code or database)

d) Abbreviations or synonymous names

2) Data elements in the assembly and their structure (number, order, grouping)

3) Medium (such as disk) and structure of data elements/assemblies on the medium

4) Visual and auditory characteristics of displays and other outputs (such as colors, layouts, fonts, icons and other display elements, beeps, lights)

5) Relationships among assemblies, such as sorting/access characteristics

6) Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the assembly may be updated and whether business rules apply

7) Security and privacy constraints

8) Sources (setting/sending entities) and recipients (using/receiving entities)

e. Characteristics of communication methods that the interfacing entity (ies) will use for the interface such as:

1) Project-unique identifier(s)

2) Communication links/bands/frequencies/media and their characteristics

3) Message formatting

4) Flow control (such as sequence numbering and buffer allocation)

5) Data transfer rate, whether periodic/aperiodic, and interval between transfers

6) Routing, addressing, and naming conventions

7) Transmission services, including priority and grade

8) Safety/security/privacy considerations, such as encryption, user authentication, compartmentalization, and auditing

f. Characteristics of protocols that the interfacing entity(ies) will use for the interface, such as:

1) Project-unique identifier(s)

2) Priority/layer of the protocol

3) Packeting, including fragmentation and reassembly, routing, and addressing

4) Legality checks, error control, and recovery procedures

5) Synchronization, including connection establishment, maintenance, termination

6) Status, identification, and any other reporting features

g. Other characteristics, such as physical compatibility of the interfacing entity (ies) (dimensions, tolerances, loads, voltages, plug compatibility, etc.)

5. CSCI detailed design. This section shall be divided into the following paragraphs to describe each software unit of the CSCI. If part or all of the design depends upon system states or modes, this dependency shall be indicated. If design information falls into more than one paragraph, it may be presented once and referenced from the other paragraphs. Design conventions needed to understand the design shall be presented or referenced. Interface characteristics of software units may be described here, in Section 4, or in Interface Design Descriptions (IDDs). Software units that are databases, or that are used to access or manipulate databases, may be described here or in Database Design Descriptions (DBDDs).

5.x (Project-unique identifier of a software unit, or designator of a group of software units). This paragraph shall identify a software unit by project-unique identifier and shall describe the unit. The description shall include the following information, as applicable. Alternatively, this paragraph may designate a group of software units and identify and describe the software units and identify and describe the software units in subparagraphs. Software units that contain other software units may reference the descriptions of those units rather than repeating information.

a. Unit design decisions, if any, such as algorithms to be used, if not previously selected

b. Any constraints, limitations, or unusual features in the design of the software unit

c. The programming language to be used and rationale for its use if other than the specified CSCI language

d. If the software unit consists of or contains procedural commands (such as menu selections in a database management system (DBMS) for defining forms and reports, on line DBMS queries for database access and manipulation, input to a graphical user interface (GUI) builder for automated code generation, commands to the operating system, or shell scripts), a list of the procedural commands and reference to user manuals or other documents that explain them

e. If the software unit contains, receives, or outputs data, a description of its inputs, outputs, and other data elements and data element assemblies, as applicable. Paragraph 4.3.x of this DID provides a list of topics to be covered, as applicable. Data local to the software unit shall be described separately from data input to or output from the software unit. If the software unit is a database, a corresponding Database Design Description (DBDD) shall be referenced; interface characteristics may be provided here or by referencing section 4 or the corresponding Interface Design Description(s).

f. If the software unit contains logic, the logic to be used by the software unit, including, as applicable:

1) Conditions in effect within the software unit when its execution is initiated

2) Conditions under which control is passed to other software units

3) Response and response time to each input, including data conversion, renaming, and data transfer operations

4) Sequence of operations and dynamically controlled sequencing during the software unit's operation, including:

a) The method for sequence control

b) The logic and input conditions of that method, such as timing variations, priority assignments

c) Data transfer in and out of memory

d) The sensing of discrete input signals, and timing relationships between interrupt operations within the software unit

5) Exception and error handling

6. Requirements traceability. This section shall contain:

a. Traceability from each software unit identified in this SDD to the CSCI requirements allocated to it. (Alternatively, this traceability may be provided in 4.1.)

b. Traceability from each CSCI requirement to the software units to which it is allocated.

7. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

A. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g., charts classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendixes may be bound as separate documents for ease in handling. Appendixes shall be lettered alphabetically (A, B, etc.).

END OF DI-IPSC-81435A

DATA ITEM DESCRIPTION

Title: INTERFACE DESIGN DESCRIPTION (IDD)

Number: DI-IPSC-81436A
AMSC Number: N7361
DTIC Applicable: No
Office of Primary Responsibility: NAVY/EC
Applicable Forms:
Use, Relationships:

Approval Date: 19991215
Limitation:
GIDEP Applicable:

The Interface Design Description (IDD) describes the interface characteristics of one or more systems, subsystems, Hardware Configuration Items (HWCIs), Computer Software Configuration Items (CSCIs), manual operations, or other system components. An IDD may describe any number of interfaces.

The IDD can be used to supplement the System/Subsystem Design Description (SSDD) (DI-IPSC-81432A), Software Design Description (SDD) (DI-IPSC-81435A), and Database Design Description (DBDD) (DI-IPSC-81437A). The IDD and its companion Interface Requirements Specification (IRS) (DI-IPSC-81434A) serve to communicate and control interface design decisions.

This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by specific and discrete task requirements as delineated in the contract.

This DID is used when the developer is tasked to define and record the interface design of one or more systems, subsystems, HWCIs, CSCIs, manual operations, or other system components.

The IRS specifies interface requirements; the IDD describes interface characteristics selected to meet those requirements. The IDD may reference the IRS to avoid repeating information. The IDD can be used to supplement the SSDD, SDD, or DBDD.

This DID supersedes DI-IPSC-81436.

Requirements:

1. Reference documents. None.

2. General instructions.

a. Automated techniques. Use of automated techniques is encouraged. The term "document" in this DID means a collection of data regardless of its medium.

b. Alternate presentation styles. Diagrams, tables, matrices, and other presentation styles are acceptable substitutes for text when data required by this DID can be made more readable using these styles.

3. Format. Following are the format requirements.

The description shall be in contractor format unless otherwise specified on the Contract Data Requirements List (CDRL)(DD 1423). The CDRL should specify whether deliverable data are to be delivered on paper or electronic media; are to be in a given electronic form (such as ASCII, CALS, or compatible with a specified word processor or other support software); may be delivered in developer format rather than in the format specified herein; and may reside in a computer-aided software engineering (CASE) or other automated tool rather than in the form of a traditional document.

4. Content. The description shall contain the following:

a. Title page or identifier. The document shall include a title page containing, as applicable: document number; volume number; version/revision indicator; security markings or other restrictions on the handling of the document; date; document title; name, abbreviation, and any other identifier for the systems, subsystems, or items to which the document applies; contract number; CDRL item number; organization for which the document has been prepared; name and address of the preparing organization; distribution statement; and signature blocks for the developer representative authorized to release the document, the acquirer representative authorized to approve the document, and the dates of release/approval. For data in a database or other alternative form, this information shall be included on external and internal labels or by equivalent identification methods.

b. Table of contents. The document shall contain a table of contents providing the number, title, and page number of each titled paragraph, figure, table, and appendix. For data in a database or other alternative form, this information shall consist of an internal or external table of contents containing pointers to, or instructions for accessing, each paragraph, figure, table, and appendix or their equivalents.

c. Page numbering/labeling. Each page shall contain a unique page number and display the document number, including version, volume, and date, as applicable. For data in a database or other alternative form, files, screens, or other entities shall be assigned names or numbers in such a way that desired data can be indexed and accessed.

d. Response to tailoring instructions. If a paragraph is tailored out of this DID, the resulting document shall contain the corresponding paragraph number and title, followed by "This paragraph has been tailored out." For data in a database or other alternative form, this representation need occur only in the table of contents or equivalent.

e. Multiple paragraphs and subparagraphs. Any section, paragraph, or subparagraph in this DID may be written as multiple paragraphs or subparagraphs to enhance readability.

f. Standard data descriptions. If a data description required by this DID has been published in a standard data element dictionary specified in the contract, reference to an entry in that dictionary is preferred over including the description itself.

g. Substitution of existing documents. Commercial or other existing documents may be substituted for all or part of the document if they contain the required data.

The numbers shown designate the paragraph numbers to be used in the document.

1. Scope. This section shall be divided into the following paragraphs.

1.1 Identification. This paragraph shall contain a full identification of the system and the software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

1.2 System overview. This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarize the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

1.3 Document overview. This paragraph shall summarize the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Government stocking activities.

3. Interface design. This section shall be divided into the following paragraphs to describe the interface characteristics of one or more systems, subsystems, configuration items, manual operations, or other system components. If part or all of the design depends upon system states or modes, this dependency shall be indicated. If design information falls into more than one paragraph, it may be presented once and referenced from the other paragraphs. If part or all of this information is documented elsewhere, it may be referenced. Design conventions needed to understand the design shall be presented or referenced.

3.1 Interface identification and diagrams. For each interface in 1.1, this paragraph shall state the project-unique identifier assigned to the interface and shall identify the interfacing entities (systems, configuration items, users, etc.) by name, number, version, and documentation references, as applicable. The identification shall state which entities have fixed interface characteristics (and therefore impose interface requirements on interfacing entities) and which are being developed or modified (thus having interface requirements imposed on them). One or more interface diagrams shall be provided, as appropriate, to depict the interfaces.

3.x (Project-unique identifier of interface). This paragraph (beginning with 3.2) shall identify an interface by project-unique identifier, shall briefly identify the interfacing entities,

and shall be divided into subparagraphs as needed to describe the interface characteristics of one or both of the interfacing entities. If a given interfacing entity is not covered by this IDD (for example, an external system) but is interface characteristics need to be mentioned to describe interfacing entities that are, these characteristics shall be stated as assumptions or as "When [the entity not covered] does this, [the entity that is covered] will ...." This paragraph may reference other documents (such as data dictionaries, standards for protocols, and standards for user interfaces) in place of stating the information here. The design description shall include the following, as applicable, presented in any order suited to the information to be provided, and shall note any differences in these characteristics from the point of view of the interfacing entities (such as different expectations about the size, frequency, or other characteristics of data elements):

a. Priority assigned to the interface by the interfacing entity (ies)

b. Type of interface (such as real-time data transfer, storage-and-retrieval of data, etc.) to be implemented

c. Characteristics of individual data elements that the interfacing entity (ies) will provide, store, send, access, receive, etc., such as:

1) Names/identifiers

a) Project-unique identifier
b) Non-technical (natural-language) name
c) DOD standard data element name
d) Technical name (e.g., variable or field name in code or database)
e) Abbreviation or synonymous names

2) Data type (alphanumeric, integer, etc.)

3) Size and format (such as length and punctuation of a character string)

4) Units of measurement (such as meters, dollars, nanoseconds)

5) Range or enumeration of possible values (such as 0-99)

6) Accuracy (how correct) and precision (number of significant digits)

7) Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the data element may be updated and whether business rules apply

8) Security and privacy constraints

9) Sources (setting/sending entities) and recipients (using/receiving entities)

d. Characteristics of data element assemblies (records, messages, files, arrays, displays, reports, etc.) that the interfacing entity (ies) will provide, store, send, access, receive, etc., such as:

1) Names/identifiers

a) Project-unique identifier
b) Non-technical (natural language) name
c) Technical name (e.g., record or data structure name in code or database)
d) Abbreviations or synonymous names

2) Data elements in the assembly and their structure (number, order, grouping)

3) Medium (such as disk) and structure of data elements/assemblies on the medium

4) Visual and auditory characteristics of displays and other outputs (such as colors, layouts, fonts, icons and other display elements, beeps, lights)

5) Relationships among assemblies, such as sorting/access characteristics

6) Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the assembly may be updated and whether business rules apply

7) Security and privacy constraints

8) Sources (setting/sending entities) and recipients (using/receiving entities)

e. Characteristics of communication methods that the interfacing entity (ies) will use for the interface such as:

1) Project-unique identifier(s)
2) Communication links/bands/frequencies/media and their characteristics
3) Message formatting
4) Flow control (such as sequence numbering and buffer allocation)
5) Data transfer rate, whether periodic/aperiodic, and interval between transfers
6) Routing, addressing, and naming conventions
7) Transmission services, including priority and grade
8) Safety/security/privacy considerations, such as encryption, user authentication, compartmentalization, and auditing

f. Characteristics of protocols that the interfacing entity (ies) will use for the interface, such as:

1) Project-unique identifier(s)

2) Priority/layer of the protocol
3) Packeting, including fragmentation and reassembly, routing, and addressing
4) Legality checks, error control, and recovery procedures
5) Synchronization, including connection establishment, maintenance, termination
6) Status, identification, and any other reporting features

g. Other characteristics, such as physical compatibility of the interfacing entity (ies) (dimensions, tolerances, loads, voltages, plug compatibility, etc.)

4. Requirements traceability. This paragraph shall contain:

a. Traceability from each software unit identified in this IDD to the system or to the CSCI requirements addressed by the entity's interface design.

b. Traceability from each system or CSCI requirements that affects an interface covered in this IDD to the interfacing entities that address it.

5. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

A. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g., charts classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendixes may be bound as separate documents for ease in handling. Appendixes shall be lettered alphabetically (A, B, etc.).

END OF DI-IPSC-81436A

DATA ITEM DESCRIPTION

Title: DATABASE DESIGN DESCRIPTION (DBDD)

Number: DI-IPSC-81437A
AMSC Number: N7362
DTIC Applicable: No
Office of Primary Responsibility: NAVY/EC
Applicable Forms:
Use, Relationships:

Approval Date: 19991215
Limitation:
GIDEP Applicable:

The Database Design Description (DBDD) describes the design of a database, that is, a collection of related data stored in one or more computerized files in a manner that can be accessed by users or computer programs via a database management system (DBMS). It can also describe the software units used to access or manipulate the data.

The DBDD is used as the basis for implementing the database and related software units. It provides the acquirer visibility into the design and provides information needed for software support.

This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by specific and discrete task requirements as delineated in the contract.

This DID is used when the developer is tasked to define and record the design of one or more databases.

Software units that access or manipulate the database may be described here or in Software Design Descriptions (SDDs) (DI-IPSC-81435A). Interfaces may be described here or in Interface Design Descriptions (IDDs) (DI-IPSC-81436A).

This DID supersedes DI-IPSC-81437.

Requirements:

1. Reference documents. None.

2. General instructions.

a. Automated techniques. Use of automated techniques is encouraged. The term "document" in this DID means a collection of data regardless of its medium.

b. Alternate presentation styles. Diagrams, tables, matrices, and other presentation styles are acceptable substitutes for text when data required by this DID can be made more readable using these styles.

3. Format. Following are the format requirements.

The description shall be in contractor format unless otherwise specified on the Contract Data Requirements List (CDRL)(DD 1423). The CDRL should specify whether deliverable data are to be delivered on paper or electronic media; are to be in a given electronic form (such as ASCII, CALS, or compatible with a specified word processor or other support software); may be delivered in developer format rather than in the format specified herein; and may reside in a computer-aided software engineering (CASE) or other automated tool rather than in the form of a traditional document.

4. Content. The description shall contain the following:

a. Title page or identifier. The document shall include a title page containing, as applicable: document number; volume number; version/revision indicator; security markings or other restrictions on the handling of the document; date; document title; name, abbreviation, and any other identifier for the system, subsystem, or item to which the document applies; contract number; CDRL item number; organization for which the document has been prepared; name and address of the preparing organization; and distribution statement. For data in a database or other alternative form, this information shall be included on external and internal labels or by equivalent identification methods.

b. Table of contents. The document shall contain a table of contents providing the number, title, and page number of each titled paragraph, figure, table, and appendix. For data in a database or other alternative form, this information shall consist of an internal or external table of contents containing pointers to, or instructions for accessing, each paragraph, figure, table, and appendix or their equivalents.

c. Page numbering/labeling. Each page shall contain a unique page number and display the document number, including version, volume, and date, as applicable. For data in a database or other alternative form, files, screens, or other entities shall be assigned names or numbers in such a way that desired data can be indexed and accessed.

d. Response to tailoring instructions. If a paragraph is tailored out of this DID, the resulting document shall contain the corresponding paragraph number and title, followed by "This paragraph has been tailored out." For data in a database or other alternative form, this representation need occur only in the table of contents or equivalent.

e. Multiple paragraphs and subparagraphs. Any section, paragraph, or subparagraph in this DID may be written as multiple paragraphs or subparagraphs to enhance readability.

f. Standard data descriptions. If a data description required by this DID has been published in a standard data element dictionary specified in the contract, reference to an entry in that dictionary is preferred over including the description itself.

g. Substitution of existing documents. Commercial or other existing documents may be substituted for all or part of the document if they contain the required data.

The numbers shown designate the paragraph numbers to be used in the document.

1. Scope. This section shall be divided into the following paragraphs.

1.1 Identification. This paragraph shall contain a full identification of the system and the software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

1.2 Database overview. This paragraph shall briefly state the purpose of the database to which this document applies. It shall describe the general nature of the database; summarize the history of its development, use, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

1.3 Document overview. This paragraph shall summarize the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this manual. This section shall also identify the source for all documents not available through normal Government stocking activities.

3. Database-wide design decisions. This section shall be divided into paragraphs as needed to present database-wide design decisions, that is, decisions about the databases behavioral design (how it will behave, from a user's point of view, in meeting its requirements, ignoring internal implementation) and other decisions affecting further design of the database. If all such decisions are explicit in the system or CSCI requirements, this section shall so state. Design decisions that respond to requirements designated critical, such as those for safety, security or privacy, shall be placed in separate subparagraphs. If a design decision depends upon system states or modes, this dependency shall be indicated. If some or all of the design decisions are described in the documentation of a custom or commercial database management system (DBMS), they may be referenced from this section. Design conventions needed to understand the design shall be presented or referenced. Examples of database-wide design decisions are the following:

a. Design decisions regarding queries or other inputs the database will accept and outputs (displays, reports, messages, responses, etc.) it will produce, including interfaces with other systems, HWCIs, CSCIs, and users (5.x.d of this DID identifies topics to be considered in this description). If part or all of this information is given in Interface Design Descriptions (IDDs), they may be referenced.

b. Design decisions on database behavior in response to each input or query, including actions, response times and other performance characteristics, selected equations/algorithms/rules, disposition, and handling of unallowed inputs.

c. Design decisions on how databases/date files will appear to the user (4.x of this DID identifies topics to be considered in this description).

d. Design decisions on the database management system to be used (including name, version/release) and the type of flexibility to be built into the database for adapting to changing requirements.

e. Design decisions on the levels and types of availability, security, privacy, and continuity of operations to be offered by the database.

f. Design decisions on database distribution (such as client/server), master database file updates and maintenance, including maintaining consistency, establishing/reestablishing and maintaining synchronization, enforcing integrity and business rules

g. Design decisions on backup and restoration including data and process distribution strategies, permissible actions during backup and restoration, and special considerations for new or non-standard technologies such as video and sound

h. Design decisions on repacking, sorting, indexing, synchronization, and consistency including automated disk management and space reclamation considerations, optimizing strategies and considerations, storage and size considerations, and population of the database and capture of legacy data

4. Detailed design of the database. This section shall be divided into paragraphs as needed to describe the detailed design of the database. The number of levels of design and the names of those levels shall be based on the design methodology used. Examples of database design levels include conceptual, internal, logical, and physical. If part or all of the design depends upon system states or modes, this dependency shall be indicated. Design conventions needed to understand the design shall be presented or referenced.

Note: This DID uses the term "data element assembly" to mean any entity, relation, schema, field, table, array, etc., that has structure (number/order/grouping of data elements) at a given design level (e.g., conceptual, interval, logical, physical) and the term "data element" to mean any relation, attribute, field, cell, data element, etc. that does not have structure at that level.

4.x (Name of database design level). This paragraph shall identify a database design level and shall describe the data elements and data element assemblies of the database in the terminology of the selected design method. The information shall include the following, as applicable, presented in any order suited to the information to be provided:

a. Characteristics of individual data elements in the database design, such as:

1) Names/identifiers

a) Project-unique identifier

b) Non-technical (natural-language) name

c) DoD standard data element name

d) Technical name (e.g., field name in the database)

e) Abbreviation or synonymous names

2) Data type (alphanumeric, integer, etc.)

3) Size and format (such as length and punctuation of a character string)

4) Units of measurement (such as meters, dollars, nanoseconds)

5) Range or enumeration of possible values (such as 0-99)

6) Accuracy (how correct) and precision (number of significant digits)

7) Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the data element may be updated and whether business rules apply

8) Security and privacy constraints

9) Sources (setting/sending entities) and recipients (using/receiving entities)

b. Characteristics of data element assemblies (records, messages, files, arrays, displays, reports, etc.) in the database design, such as:

1) Names/identifiers

a) Project-unique identifier

b) Non-technical (natural language) name

c) Technical name (e.g., record or data structure name in code or database)

d) Abbreviations or synonymous names

2) Data elements in the assembly and their structure (number, order, grouping)

3) Medium (such as disk) and structure of data elements/assemblies on the medium

4) Visual and auditory characteristics of displays and other outputs (such as colors, layouts, fonts, icons and other display elements, beeps, lights)

5) Relationships among assemblies, such as sorting/access characteristics

6) Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the assembly may be updated and whether business rules apply

7) Security and privacy constraints

8) Sources (setting/sending entities) and recipients (using/receiving entities)

5. Detailed design of software units used for database access or manipulation. This section shall be divided into the following paragraphs to describe each software unit used for database access or manipulation. If part or all of this information is provided elsewhere, such as in a Software Design Description (SDD), the SDD for a customized DBMS, or the user manual of a commercial DBMS, that information may be referenced rather than repeated here. If part or all of the design depends upon system states or modes, this dependency shall be indicated. If design information falls into more than one paragraph, it may be presented once and referenced from the other paragraphs. Design conventions needed to understand the design shall be presented or referenced.

5.x (Project-unique identifier of a software unit, or designator for a group of software units). This paragraph shall identify a software unit by project-unique identifier and shall describe the unit. The description shall include the following information, as applicable. Alternatively, this paragraph designates a group of software units and identifies and describes the software units in subparagraphs. Software units that contain other software units may reference the descriptions of those units rather than repeating information.

a. Unit design decisions, if any, such as algorithms to be used, if not previously selected

b. Any constraints, limitations, or unusual features in the design of the software unit

c. The programming language to be used and rationale for its use if other than the specified CSCI language

d. If the software unit consists of or contains procedural commands (such as menu selections in a database management system (DBMS) for defining forms and reports, on-line DBMS queries for database access and manipulation, input to a graphical user interface (GUI) builder for automated code generation, commands to the operating system, or shell scripts), a list of the procedural commands and a reference to user manuals or other documents that explain them

e. If the software unit contains, receives, or outputs data, a description of its inputs, outputs, and other data elements and data element assemblies, as applicable. Data local to the software unit shall be described separately from data input to or output from the software unit. Interface characteristics may be provided here or by referencing Interface Design Description(s). If a given interfacing entity is not covered by this DBDD (for example, an external system) but is interface characteristics need to be mentioned to describe software units that are, these characteristics shall be stated as assumptions or as "When [the entity not covered] does this, [the

software unit] will...." This paragraph may reference other documents (such as data dictionaries, standards for protocols, and standards for user interfaces) in place of stating the information here. The design description shall include the following, as applicable, presented in any order suited t the information to be provided, and shall note any differences in these characteristics from the point of view of the interfacing entities (such as different expectations about the size, frequency, or other characteristics of data elements):

1) Project-unique identifier for the interface

2) Identification of the interfacing entities (software units, configuration items, users, etc.) by name, number, version, and documentation references, as applicable

3) Priority assigned to the interface by the interfacing entity(ies)

4) Type of interface (such as real-time data transfer, storage-and-retrieval of data, etc.) to be implemented

5) Characteristics of individual data elements that the interfacing entity(ies) will provide, store, send, access, receive, etc. Paragraph 4.x.a of this DID identifies topics to be covered in this description.

6) Characteristics of data element assemblies (records, messages, files, arrays, displays, reports, etc.) that the interfacing entity(ies) will provide, store, send, access, receive, etc. Paragraph 4.x.b of this DID identifies topics to be covered in this description.

7) Characteristics of communication methods that the interfacing entity(ies) will use for the interface, such as:

a) Project-unique identifier(s)

b) Communication links/bands/frequencies/media and their characteristics

c) Message formatting

d) Flow control (such as sequence numbering and buffer allocation)

e) Data transfer rate, whether periodic/aperiodic, and interval between transfers

f) Routing, addressing, and naming conventions

g) Transmission services, including priority and grade

h) Safety/security/privacy considerations, such as encryption, user authentication, compartmentalization, and auditing

8) Characteristics of protocols that the interfacing entity(ies) will use for the interface, such as:

a) Project-unique identifier(s)

b) Priority/layer of the protocol

c) Packeting, including fragmentation and reassembly, routing, and addressing

d) Legality checks, error control, and recovery procedures

e) Synchronization, including connection establishment, maintenance, termination

f) Status, identification, and any other reporting features

9) Other characteristics, such as physical compatibility of the interfacing entity(ies) (dimensions, tolerances, lads, voltages, plug compatibility, etc.)

f. If the software unit contains logic, the logic to be used by the software unit, including, as applicable:

1) Conditions in effect within the software unit when its execution is initiated

2) Conditions under which control is passed to other software units

3) Response and response time to each input, including data conversion, renaming, and data transfer operations

4) Sequence of operations and dynamically controlled sequencing during the software unit's operation, including:

a) The method for sequence control

b) The logic and input conditions of that method, such as timing variations, priority assignments

c) Data transfer in and out of memory

d) The sensing of discrete input signals, and timing relationships between interrupt operations within the software unit

5) Exception and error handling

6. Requirements traceability. This section shall contain:

a. Traceability from each database or other software unit covered by this DBDD to the system or CSCI requirements it addresses.

b. Traceability from each system or CSCI requirement that has been to a database or other software unit covered in this DBDD to the database or other software units that address it.

7. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

A. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g., charts classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendixes may be bound as separate documents for ease in handling. Appendixes shall be lettered alphabetically (A, B, etc.).

END OF DI-IPSC-81437A

DATA ITEM DESCRIPTION

Title: SOFTWARE TEST PLAN (STP)

Number: DI-IPSC-81438A
AMSC Number: N7363
DTIC Applicable:
Office of Primary Responsibility: NAVY/EC
Applicable Forms:
Use, Relationships:

Approval Date: 19991215
Limitation:
GIDEP Applicable:

The Software Test Plan (STP) describes plans for qualification testing of Computer Software Configuration Items (CSCIs) and software systems. It describes the software test environment to be used for the testing, identifies the tests to be performed, and provides schedules for test activities.

There is usually a single STP for a project. The STP enables the acquirer to assess the adequacy of planning for CSCI and, if applicable, software system qualification testing.

This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by specific and discrete task requirements as delineated in the contract.

This DID is used when the developer is tasked to develop and record plans for conducting qualification testing and/or system qualification testing of a software system.

This DID supersedes DI-IPSC-81438.

Requirements:

1. Reference documents. None.

2. General instructions.

a. Automated techniques. Use of automated techniques is encouraged. The term "document" in this DID means a collection of data regardless of its medium.

b. Alternate presentation styles. Diagrams, tables, matrices, and other presentation styles are acceptable substitutes for text when data required by this DID can be made more readable using these styles.

3. Format. Following are the format requirements.

The plan shall be in contractor format unless otherwise specified on the Contract Data Requirements List (CDRL)(DD 1423). The CDRL should specify whether deliverable data are to be delivered on paper or electronic media; are to be in a given electronic form (such as ASCII,

CALS, or compatible with a specified word processor or other support software); may be delivered in developer format rather than in the format specified herein; and may reside in a computer-aided software engineering (CASE) or other automated tool rather than in the form of a traditional document.

4. Content. The plan shall contain the following:

a. Title page or identifier. The document shall include a title page containing, as applicable: document number; volume number; version/revision indicator; security markings or other restrictions on the handling of the document; date; document title; name, abbreviation, and any other identifier for the system, subsystem, or item to which the document applies; contract number; CDRL item number; organization for which the document has been prepared; name and address of the preparing organization; and distribution statement. For data in a database or other alternative form, this information shall be included on external and internal labels or by equivalent identification methods.

b. Table of contents. The document shall contain a table of contents providing the number, title, and page number of each titled paragraph, figure, table, and appendix. For data in a database or other alternative form, this information shall consist of an internal or external table of contents containing pointers to, or instructions for accessing, each paragraph, figure, table, and appendix or their equivalents.

c. Page numbering/labeling. Each page shall contain a unique page number and display the document number, including version, volume, and date, as applicable. For data in a database or other alternative form, files, screens, or other entities shall be assigned names or numbers in such a way that desired data can be indexed and accessed.

d. Response to tailoring instructions. If a paragraph is tailored out of this DID, the resulting document shall contain the corresponding paragraph number and title, followed by "This paragraph has been tailored out." For data in a database or other alternative form, this representation need occur only in the table of contents or equivalent.

e. Multiple paragraphs and subparagraphs. Any section, paragraph, or subparagraph in this DID may be written as multiple paragraphs or subparagraphs to enhance readability.

f. Standard data descriptions. If a data description required by this DID has been published in a standard data element dictionary specified in the contract, reference to an entry in that dictionary is preferred over including the description itself.

g. Substitution of existing documents. Commercial or other existing documents may be substituted for all or part of the document if they contain the required data.

The numbers shown designate the paragraph numbers to be used in the document.

1. Scope. This section shall be divided into the following paragraphs.

1.1 Identification. This paragraph shall contain a full identification of the system and the software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

1.2 System overview. This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarize the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

1.3 Document overview. This paragraph shall summarize the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

1.4 Relationship to other plans. This paragraph shall describe the relationship, if any, of the STP to related project management plans.

2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Government stocking activities.

3. Software test environment. This section shall be divided into the following paragraphs to describe the software test environment at each intended test site. reference may be made to the Software Development Plan (SDP) for resources that are described here.

3.x (Name of test site(s)). This paragraph shall identify one or more test sites to be used for the testing, and shall be divided into the following subparagraphs to describe the software test environment at the site(s). If all tests will be conducted at a single site, this paragraph and its subparagraphs shall be presented only once. If multiple test sites use the same or similar software test environments, they may be discussed together. Duplicative information among test site descriptions may be reduced by referencing earlier descriptions.

3.x.1 Software items. This paragraph shall identify by name, number, and version, as applicable, the software items (e.g., operating systems, compilers, communications software, related applications software, databases, input files, code auditors, dynamic path analyzers, test drivers, preprocessors, test data generators, test control software, other special test software, post-processors) necessary to perform the planned testing activities at the test site(s). This paragraph shall describe the purpose of each item, describe its media (tape, disk, etc.), identify those that are expected to be supplied by the site, and identify any classified processing or other security or privacy issues associated with the software items.

3.x.2 Hardware and firmware items. This paragraph shall identify by name, number, and version, as applicable, the computer hardware, interfacing equipment, communications equipment, test data reduction equipment, apparatus such as extra peripherals (tape drives, printers, plotters), test message generators, test timing devices, test event records, etc., and firmware items that will be used in the software test environment at the test site(s). This paragraph shall describe the purpose of each item, state the period of usage and the number of

each item needed, identify those that are expected to be supplied by the site, and identify any classified processing or other security or privacy issues associated with the items.

3.x.3 Other materials. This paragraph shall identify and describe any other materials needed for the testing at the test site(s). These materials may include manuals, software listings, media containing the software to be tested, media containing data to be used in the tests, sample listings of outputs, and other forms or instructions. This paragraph shall identify those items that are to be delivered to the site and those that are expected to be supplied by the site. The description shall include the type, layout, and quantity of the materials, as applicable. This paragraph shall identify any classified processing or other security or privacy issues associated with the items.

3.x.4 Proprietary nature, acquirer's rights, and licensing. This paragraph shall identify the proprietary nature, acquirer's rights, and licensing issues associated with each element of the software test environment.

3.x.5 Installation, testing, and control. This paragraph shall identify the developer's plans for performing each of the following, possibly in conjunction with personnel at the test site(s):

a. Acquiring or developing each element of the software test environment

b. Installing and testing each item of the software test environment prior to its use

c. Controlling and maintaining each item of the software test environment

3.x.6 Participating organizations. This paragraph shall identify the organizations that will participate in the testing at the test site(s) and the roles and responsibilities of each.

3.x.7 Personnel. This paragraph shall identify the number, type, and skill level of personnel needed during the test period at the test site(s), the dates and times they will be needed, and any special needs, such as multishift operation and retention of key skills to ensure continuity and consistency in extensive test programs.

3.x.8 Orientation plan. This paragraph shall describe any orientation and training to be given before and during the testing. This information shall be related to the personnel needs given in 3.x.7. This training may include user instruction, operator instruction, maintenance and control group instructions, and orientation briefings to staff personnel. If extensive training is anticipated, a separate plan may be developed and referenced here.

3.x.9 Tests to be performed. This paragraph shall identify, by referencing section 4, the tests to be performed at the test site(s).

4. Test identification. This section shall be divided into the following paragraphs to identify and describe each test to which this STP applies.

4.1 General information. This paragraph shall be divided into subparagraphs to present general information applicable to the overall testing to be performed.

4.1.1 Test levels. This paragraph shall describe the levels at which testing will be performed, for example, CSCI level or system level.

4.1.2 Test classes. This paragraph shall describe the types or classes of tests that will be performed (for example, timing tests, erroneous input tests, maximum capacity tests).

4.1.3 General test conditions. This paragraph shall describe conditions that apply to all of the tests or to a group of tests. For example: Each test shall include nominal, maximum, and minimum values;" "each test of type x shall use live data;" "execution size and time shall be measured for each CSCI." Included shall be a statement of the extent of testing to be performed and rationale for the extent selected. The extent of testing shall be expressed as a percentage of some well defined total quantity, such as the number of samples of discrete operating conditions or values, or other sampling approach. Also included shall be the approach to be followed for retesting/regressing testing.

4.1.4 Test progression. In case of progressive or cumulative tests, this paragraph shall explain the planned sequence or progression of tests.

4.1.5 Data recording, reduction, and analysis. This paragraph shall identify and describe the data recording, reduction, and analysis procedures to be used during and after the tests identified in this STP. These procedures shall include, as applicable, manual, automatic, and semi-automatic techniques for recording test results, manipulating the raw results into a form suitable for evaluation, and retaining the results of data reduction and analysis.

4.2 Planned tests. This paragraph shall be divided into the following subparagraphs to describe the total scope of the planned testing.

4.2.x (Item(s) to be tested). This paragraph shall identify a CSCI, subsystem, system, or other entity by name and project-unique identifier, and shall be divided into the following subparagraphs to describe the testing planned for the item(s). (Note: the "tests" in this plan are collections of test cases. There is no intent to describe each test case in this document.)

4.2.x.y (Project-unique identifier of a test). This paragraph shall identify a test by project-unique identifier and shall provide the information specified below for the test. Reference may be made as needed to the general information in 4.1.

a. Test objective

b. Test level

c. Test type or class

d. Qualification method(s) as specified in the requirements specification

e. Identifier of the CSCI requirements and, if applicable, software system requirements addressed by this test. (Alternatively, this information may be provided in Section 6.)

f. Special requirements (for example, 48 hours of continuous facility time, weapon simulation, extent of test, use of a special input or database)

g. Type of data to be recorded

h. Type of data recording/reduction/analysis to be employed

i. Assumptions and constraints, such as anticipated limitations on the test due to system or test conditions--timing, interfaces, equipment, personnel, database, etc.

j. Safety, security, and privacy considerations associated with the test

5. Test schedules. This section shall contain or reference the schedules for conducting the tests identified in this plan. It shall include:

a. A listing or chart depicting the sites at which the testing will be scheduled and the time frames during which the testing will be conducted

b. A schedule for each test site depicting the activities and events listed below, as applicable, in chronological order with supporting narrative as necessary:

1) On-site test period and periods assigned to major portions of the testing

2) Pretest on-site period needed for setting up the software test environment and other equipment, system debugging, orientation, and familiarization

3) Collection of database/data file values, input values, and other operational data needed for the testing

4) Conducting the tests, including planned retesting

5) Preparation, review, and approval of the Software Test Report (STR)

6. Requirements traceability. This paragraph shall contain:

a. Traceability from each test identified in this plan to the CSCI requirements and, if applicable, software system requirements it addresses. (Alternatively, this traceability may be provided in 4.2.x.y and referenced from this paragraph.)

b. Traceability from each CSCI requirement and, if applicable, each software system requirement covered by this test plan to the test(s) that address it. The traceability shall cover the CSCI requirements in all-applicable Software Requirements Specifications (SRSs) and

associated Interface Requirements Specifications (IRSs), and, for software systems, the system requirements in all applicable System/Subsystem Specifications (SSSs) and associated system-level IRSs.

7. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

A. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g., charts classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendixes may be bound as separate documents for ease in handling. Appendixes shall be lettered alphabetically (A, B, etc.).

END OF DI-IPSC-81438A

DATA ITEM DESCRIPTION

Title: SOFTWARE TEST DESCRIPTION (STD)

Number: DI-IPSC-81439A
AMSC Number: N7364
DTIC Applicable:
Office of Primary Responsibility: N/SPAWAR
Applicable Forms:
Use, Relationships:

Approval Date: 19991215
Limitation:
GIDEP Applicable:

The Software Test Description (STD) describes the test preparations, test cases, and test procedures to be used to perform qualification testing of a Computer Software Configuration Item (CSCI) or a software system or subsystem.

The STD enables the acquirer to assess the adequacy of the qualification testing to be performed.

This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by specific and discrete task requirements as delineated in the contract.

This DID is used when the developer is tasked to define and record the test preparations, test cases, and test procedures to be used for CSCI qualification testing or for system qualification testing of a software system.

This DID supersedes DI-IPSC-81439.

Requirements:

1. Reference documents. None.

2. General instructions.

a. Automated techniques. Use of automated techniques is encouraged. The term "document" in this DID means a collection of data regardless of its medium.

b. Alternate presentation styles. Diagrams, tables, matrices, and other presentation styles are acceptable substitutes for text when data required by this DID can be made more readable using these styles.

3. Format. Following are the format requirements.

The description shall be in contractor format unless otherwise specified on the Contract Data Requirements List (CDRL)(DD 1423). The CDRL should specify whether deliverable data are to be delivered on paper or electronic media; are to be in a given electronic form (such as ASCII, CALS, or compatible with a specified word processor or other support software); may be

delivered in developer format rather than in the format specified herein; and may reside in a computer-aided software engineering (CASE) or other automated tool rather than in the form of a traditional document.

4. Content. The description shall contain the following:

a. Title page or identifier. The document shall include a title page containing, as applicable: document number; volume number; version/revision indicator; security markings or other restrictions on the handling of the document; date; document title; name, abbreviation, and any other identifier for the system, subsystem, or item to which the document applies; contract number; CDRL item number; organization for which the document has been prepared; name and address of the preparing organization; and distribution statement. For data in a database or other alternative form, this information shall be included on external and internal labels or by equivalent identification methods.

b. Table of contents. The document shall contain a table of contents providing the number, title, and page number of each titled paragraph, figure, table, and appendix. For data in a database or other alternative form, this information shall consist of an internal or external table of contents containing pointers to, or instructions for accessing, each paragraph, figure, table, and appendix or their equivalents.

c. Page numbering/labeling. Each page shall contain a unique page number and display the document number, including version, volume, and date, as applicable. For data in a database or other alternative form, files, screens, or other entities shall be assigned names or numbers in such a way that desired data can be indexed and accessed.

d. Response to tailoring instructions. If a paragraph is tailored out of this DID, the resulting document shall contain the corresponding paragraph number and title, followed by "This paragraph has been tailored out." For data in a database or other alternative form, this representation need occur only in the table of contents or equivalent.

e. Multiple paragraphs and subparagraphs. Any section, paragraph, or subparagraph in this DID may be written as multiple paragraphs or subparagraphs to enhance readability.

f. Standard data descriptions. If a data description required by this DID has been published in a standard data element dictionary specified in the contract, reference to an entry in that dictionary is preferred over including the description itself.

g. Substitution of existing documents. Commercial or other existing documents may be substituted for all or part of the document if they contain the required data.

The numbers shown designate the paragraph numbers to be used in the document.

1. Scope. This section shall be divided into the following paragraphs.

1.1 Identification. This paragraph shall contain a full identification of the system and the software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

1.2 System overview. This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarize the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

1.3 Document overview. This paragraph shall summarize the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Government stocking activities.

3. Test preparations. This section shall be divided into the following paragraphs. Safety precautions, marked by WARNING or CAUTION, and security and privacy considerations shall be included as applicable.

3.x (Project-unique identifier of a test). This paragraph shall identify a test by project-unique identifier, shall provide a brief description, and shall be divided into the following subparagraphs. When the information required duplicates information previously specified for another test, that information may be referenced rather than repeated.

3.x.1 Hardware preparation. This paragraph shall describe the procedures necessary to prepare the hardware for the test. Reference may be made to published operating manuals for these procedures. The following shall be provided, as applicable:

a. The specific hardware to be used, identified by name and, if applicable, number

b. Any switch settings and cabling necessary to connect the hardware

c. One or more diagrams to show hardware, interconnecting control, and data paths

d. Step-by-step instructions for placing the hardware in a state of readiness

3.x.2 Software preparation. This paragraph shall describe the procedures necessary to prepare the item(s) under test and any related software, including data, for the test. Reference may be made to published software manuals for these procedures. The following information shall be provided, as applicable:

a. The specific software to be used in the test

b. The storage medium of the item(s) under test (e.g., magnetic tape, diskette)

c. The storage medium of any related software (e.g., simulators, test drivers, databases)

d. Instructions for loading the software, including required sequence
e. Instructions for software initialization common to more than one test case

3.x.3 Other pre-test preparations. This paragraph shall describe any other pre-test personnel actions, preparations, or procedures necessary to perform the test.

4. Test descriptions. This section shall be divided into the following paragraphs. Safety precautions, marked by WARNING or CAUTION, and security and privacy considerations shall be included as applicable.

4.x (Project-unique identifier of a test). This paragraph shall identify a test by project-unique identifier and shall be divided into the following subparagraphs. When the required information duplicates information previously provided, that information may be referenced rather than repeated.

4.x.y (Project-unique identifier of a test case). This paragraph shall identify a test case by project-unique identifier, state its purpose, and provide a brief description. The following subparagraphs shall provide a detailed description of the test case.

4.x.y.1 Requirements addressed. This paragraph shall identify the CSCI or system requirements addressed by the test case. (Alternatively, this information may be provided in 5.a.)

4.x.y.2 Prerequisite conditions. This paragraph shall identify any prerequisite conditions that must be established prior to performing the test case. The following considerations shall be discussed, as applicable:

a. Hardware and software configuration

b. Flags, initial breakpoints, pointers, control parameters, or initial data to be set/reset prior to test commencement

c. Preset hardware conditions or electrical states necessary to run the test case

d. Initial conditions to be used in making timing measurements

e. Conditioning of the simulated environment

f. Other special conditions peculiar to the test case

4.x.y.3 Test inputs. This paragraph shall describe the test inputs necessary for the test case. The following shall be provided, as applicable:

a. Name, purpose, and description (e.g., range of values, accuracy) of each test input

b. Source of the test input and the method to be used for selecting the test input

c. Whether the test input is real or simulated

d. Time or event sequence of test input

e. The manner in which the input data will be controlled to:

1) Test the item(s) with a minimum/reasonable number of data types and values

2) Exercise the item(s) with a range of valid data types and values that test for overload, saturation, and other "worst case" effects

3) Exercise the item(s) with invalid data types and values to test for appropriate handling of irregular inputs

4) Permit retesting, if necessary

4.x.y.4 Expected test results. This paragraph shall identify all expected test results for the test case. Both intermediate and final test results shall be provided, as applicable.

4.x.y.5 Criteria for evaluating results. This paragraph shall identify the criteria to be used for evaluating the intermediate and final results of the test case. For each test result, the following information shall be provided, as applicable:

a. The range or accuracy over which an output can vary and still be acceptable

b. Minimum number of combinations or alternatives of input and output conditions that constitute an acceptable test result

c. Maximum/minimum allowable test duration, in terms of time or number of events

d. Maximum number of interrupts, halts, or other system breaks that may occur

e. Allowable severity of processing errors

f. Conditions under which the result is inconclusive and re-testing is to be performed

g. Conditions under which the outputs are to be interpreted as indicating irregularities in input test data, in the test database/data files, or in test procedures

h. Allowable indications of the control, status, and results of the test and the readiness for the next text case (may be output of auxiliary test software)

i. Additional criteria not mentioned above.

4.x.y.6 Test procedure. This paragraph shall define the test procedure for the test case. The test procedure shall be defined as a series of individually numbered steps listed sequentially in the order in which the steps are to be performed. For convenience in document maintenance the test procedures may be included as an appendix and referenced in this paragraph. The appropriate level of detail in each test procedure depends on the type of software being tested. For some software, each keystroke may be a separate test procedure step; for most software, each step may include a logically related series of keystrokes or other actions. The appropriate level of detail is the level at which it is useful to specify expected results and compare them to actual results. The following shall be provided for each test procedure, as applicable:

a. Test operator actions and equipment operation required for each step, including commands, as applicable, to:

1) Initiate the test case and apply test inputs

2) Inspect test conditions

3) Perform interim evaluations of test results

4) Record data

5) Halt or interrupt the test case

6) Request data dumps or other aids, if needed

7) Modify the database/data files

8) Repeat the test case if unsuccessful

9) Apply alternate modes as required by the test case

10) Terminate the test case

b. Expected result and evaluation criteria for each step

c. If the test case addresses multiple requirements, identification of which test procedure step(s) address which requirements. (Alternatively, this information may be provided in 5.)

d. Actions to follow in the event of a program stop or indicated error, such as:

1) Recording of critical data from indicators for reference purposes
2) Halting or pausing time-sensitive test-support software and test apparatus
3) Collection of system and operator records of test results

e. Procedures to be used to reduce and analyze test results to accomplish the following, as applicable:

1) Detect whether an output has been produced
2) Identify media and location of data produced by the test case
3) Evaluate output as a basis for continuation of test sequence
4) Evaluate test output against required output

4.x.y.7 Assumption and constraints. This paragraph shall identify any assumptions made and constraints or limitations imposed in the description of the test case due to system or test conditions, such as limitations on timing, interfaces, equipment, personnel, and database/data files. If waivers or exceptions to specified limits and parameters are approved, they shall be identified and this paragraph shall address their effects and impacts upon the test case.

5. Requirements traceability. This paragraph shall contain:

a. Traceability from each test case in this STD to the system or CSCI requirements it addresses. If a test case addresses multiple requirements, traceability from each set of test procedure steps to the requirement(s) addressed. (Alternatively, this traceability may be provided in 4.x.y.1.)

b. Traceability from each system or CSCI requirement covered by this STD to the test case(s) that address it. For CSCI testing, traceability from each CSCI requirement in the CSCI's Software Requirements Specification (SRS) and associated Interface Requirements Specifications (IRSs). For system testing, traceability from each system requirement in the system's System/Subsystem Specification (SSS) and associated IRSs. If a test case addresses multiple requirements, the traceability shall indicate the particular test procedure steps that address each requirement.

6. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

A. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g., charts classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendixes may be bound as separate documents for ease in handling. Appendixes shall be lettered alphabetically (A, B, etc.).

END OF DI-IPSC-81439A

DATA ITEM DESCRIPTION

Title: SOFTWARE TEST REPORT (STR)

Number: DI-IPSC-81440A
AMSC Number: N7365
DTIC Applicable:
Office of Primary Responsibility: N/SPAWAR
Applicable Forms:
Use, Relationships:

Approval Date: 19991215
Limitation:
GIDEP Applicable:

The Software Test Report (STR) is a record of the qualification testing performed on a Computer Software Configuration Item (CSCI), a software system or subsystem, or other software-related item.

The STR enables the acquirer to assess the testing and its results.

This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by specific and discrete task requirements as delineated in the contract.

This DID is used when the developer is tasked to analyze and record the results of CSCI qualification testing, system qualification testing of a software system, or other testing identified in the contract.

This DID supersedes DI-IPSC-81440.

Requirements:

1. Reference documents. None.

2. General instructions.

a. Automated techniques. Use of automated techniques is encouraged. The term "document" in this DID means a collection of data regardless of its medium.

b. Alternate presentation styles. Diagrams, tables, matrices, and other presentation styles are acceptable substitutes for text when data required by this DID can be made more readable using these styles.

3. Format. Following are the format requirements.

The report shall be in contractor format unless otherwise specified on the Contract Data Requirements List (CDRL)(DD 1423). The CDRL should specify whether deliverable data are to be delivered on paper or electronic media; are to be in a given electronic form (such as ASCII, CALS, or compatible with a specified word processor or other support software); may be

delivered in developer format rather than in the format specified herein; and may reside in a computer-aided software engineering (CASE) or other automated tool rather than in the form of a traditional document.

4. Content. The report shall contain the following:

a. Title page or identifier. The document shall include a title page containing, as applicable: document number; volume number; version/revision indicator; security markings or other restrictions on the handling of the document; date; document title; name, abbreviation, and any other identifier for the system, subsystem, or item to which the document applies; contract number; CDRL item number; organization for which the document has been prepared; name and address of the preparing organization; and distribution statement. For data in a database or other alternative form, this information shall be included on external and internal labels or by equivalent identification methods.

b. Table of contents. The document shall contain a table of contents providing the number, title, and page number of each titled paragraph, figure, table, and appendix. For data in a database or other alternative form, this information shall consist of an internal or external table of contents containing pointers to, or instructions for accessing, each paragraph, figure, table, and appendix or their equivalents.

c. Page numbering/labeling. Each page shall contain a unique page number and display the document number, including version, volume, and date, as applicable. For data in a database or other alternative form, files, screens, or other entities shall be assigned names or numbers in such a way that desired data can be indexed and accessed.

d. Response to tailoring instructions. If a paragraph is tailored out of this DID, the resulting document shall contain the corresponding paragraph number and title, followed by "This paragraph has been tailored out." For data in a database or other alternative form, this representation need occur only in the table of contents or equivalent.

e. Multiple paragraphs and subparagraphs. Any section, paragraph, or subparagraph in this DID may be written as multiple paragraphs or subparagraphs to enhance readability.

f. Standard data descriptions. If a data description required by this DID has been published in a standard data element dictionary specified in the contract, reference to an entry in that dictionary is preferred over including the description itself.

g. Substitution of existing documents. Commercial or other existing documents may be substituted for all or part of the document if they contain the required data.

The numbers shown designate the paragraph numbers to be used in the document.

1. Scope. This section shall be divided into the following paragraphs.

1.1 Identification. This paragraph shall contain a full identification of the system and the software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

1.2 System overview. This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarize the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

1.3 Document overview. This paragraph shall summarize the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Government stocking activities.

3. Overview of test results. This section shall be divided into the following paragraphs to provide an overview of test results.

3.1 Overall assessment of the software tested. This paragraph shall:

a. Provide an overall assessment of the software as demonstrated by the test results in this report

b. Identify any remaining deficiencies, limitations, or constraints that were detected by the testing performed. Problem/change reports may be used to provide deficiency information.

c. For each remaining deficiency, limitation, or constraint, describe:

1) Its impact on software and system performance, including identification of requirements not met

2) The impact on software and system design to correct it

3) A recommended solution/approach for correcting it

3.2 Impact of test environment. This paragraph shall provide an assessment of the manner in which the test environment may be different from the operational environment and the effect of this difference on the test results.

3.3 Recommended improvements. This paragraph shall provide any recommended improvements in the design, operation, or testing of the software tested. A discussion of each recommendation and its impact on the software may be provided. If no recommended improvements are provided, this paragraph shall state "None."

4. Detailed test results. This section shall be divided into the following paragraphs to describe the detailed results for each test. Note: The word "test" means a related collection of test cases.

4.x (Project-unique identifier of a test). This paragraph shall identify a test by project-unique identifier and shall be divided into the following subparagraphs to describe the test results.

4.x.1 Summary of test results. This paragraph shall summarize the results of the test. The summary shall include, possibly in a table, the completion status of each test case associated with the test (for example, "all results as expected," "problems encountered," "deviations required"). When the completion status is not "as expected," this paragraph shall reference the following paragraphs for details.

4.x.2 Problems encountered. This paragraph shall be divided into subparagraphs that identify each test case in which one or more problems occurred.

4.x.2.y (Project-unique identifier of a test case). This paragraph shall identify by project-unique identifier a test case in which one or more problems occurred, and shall provide:

a. A brief description of the problem(s) that occurred

b. Identification of the test procedure step(s) in which they occurred

c. Reference(s) to the associated problem/change report(s) and backup data, as applicable

d. The number of times the procedure or step was repeated in attempting to correct the problem(s) and the outcome of each attempt

e. Back-up points or test steps where tests were resume for retesting

4.x.3 Deviations from test cases/procedures. This paragraph shall be divided into subparagraphs that identify each test case in which deviations from test case/test procedures occurred.

4.x.3.y (Project-unique identifier of a test case). This paragraph shall identify by project-unique identifier a test case in which one or more deviations occurred, and shall provide:

a. A description of the deviation(s) (for example, test case run in which the deviation occurred and nature of the deviation, such as substitution of required equipment, procedural steps not followed, schedule deviations). (Red-lined test procedures may be used to show the deviations)

b. The rationale for the deviation(s)

c. An assessment of the deviations' impact on the validity of the test case

5. Test log. This section shall present, possibly in a figure or appendix, a chronological record of the test events covered by this report. This test log shall include:

a. The date(s), time(s), and location(s) of the tests performed

b. The hardware and software configurations used for each test including, as applicable, part/model/serial number, manufacturer, revision level, and calibration date of all hardware, and version number and name for the software components used

c. The date and time of each test-related activity, the identify of the individual(s) who performed the activity, and the identities of witnesses, as applicable

6. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

A. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g., charts classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendixes may be bound as separate documents for ease in handling. Appendixes shall be lettered alphabetically (A, B, etc.).

END OF DI-IPSC-81440A

DATA ITEM DESCRIPTION

Title: SOFTWARE PRODUCT SPECIFICATION (SPS)

Number: DI-IPSC-81441A
AMSC Number: N7366
DTIC Applicable:
Office of Primary Responsibility: N/SPAWAR
Applicable Forms:
Use, Relationships:

Approval Date: 19991215
Limitation:
GIDEP Applicable:

The Software Product Specification (SPS) contains or references the executable software, source files, and software support information, including "as built" design information and compilation, build, and modification procedures, for a Computer Software Configuration Item (CSCI).

The SPS can be used to order the executable software and/or source files for a CSCI and is the primary software support document for the CSCI. Note: Different organizations have different policies for ordering delivery of software. These policies should be determined before applying this Data Item Description (DID).

This DID contains the format and content preparation instructions for the data product generated by specific and discrete task requirements as delineated in the contract.

This DID is used when the developer is tasked to prepare executable software, source files, "as built" CSCI design, and/or related support information for delivery.

This DID supersedes DI-IPSC-81441.

Requirements:

1. Reference documents. None.

2. General instructions.

a. Automated techniques. Use of automated techniques is encouraged. The term "document" in this DID means a collection of data regardless of its medium.

b. Alternate presentation styles. Diagrams, tables, matrices, and other presentation styles are acceptable substitutes for text when data required by this DID can be made more readable using these styles.

3. Format. Following are the format requirements.

The specification shall be in contractor format unless otherwise specified on the Contract Data Requirements List (CDRL)(DD 1423). The CDRL should specify whether deliverable data are to be delivered on paper or electronic media; are to be in a given electronic form (such as ASCII,

CALS, or compatible with a specified word processor or other support software); may be delivered in developer format rather than in the format specified herein; and may reside in a computer-aided software engineering (CASE) or other automated tool rather than in the form of a traditional document.

4. Content. The specification shall contain the following:

a. Title page or identifier. The document shall include a title page containing, as applicable: document number; volume number; version/revision indicator; security markings or other restrictions on the handling of the document; date; document title; name, abbreviation, and any other identifier for the system, subsystem, or item to which the document applies; contract number; CDRL item number; organization for which the document has been prepared; name and address of the preparing organization; and distribution statement; and signature blocks for the developer representative authorized to release the document, the acquirer representative authorized to approve the document, and the dates of release/approval. For data in a database or other alternative form, this information shall be included on external and internal labels or by equivalent identification methods.

b. Table of contents. The document shall contain a table of contents providing the number, title, and page number of each titled paragraph, figure, table, and appendix. For data in a database or other alternative form, this information shall consist of an internal or external table of contents containing pointers to, or instructions for accessing, each paragraph, figure, table, and appendix or their equivalents.

c. Page numbering/labeling. Each page shall contain a unique page number and display the document number, including version, volume, and date, as applicable. For data in a database or other alternative form, files, screens, or other entities shall be assigned names or numbers in such a way that desired data can be indexed and accessed.

d. Response to tailoring instructions. If a paragraph is tailored out of this DID, the resulting document shall contain the corresponding paragraph number and title, followed by "This paragraph has been tailored out." For data in a database or other alternative form, this representation need occur only in the table of contents or equivalent.

e. Multiple paragraphs and subparagraphs. Any section, paragraph, or subparagraph in this DID may be written as multiple paragraphs or subparagraphs to enhance readability.

f. Standard data descriptions. If a data description required by this DID has been published in a standard data element dictionary specified in the contract, reference to an entry in that dictionary is preferred over including the description itself.

g. Substitution of existing documents. Commercial or other existing documents may be substituted for all or part of the document if they contain the required data.

The numbers shown designate the paragraph numbers to be used in the document.

1. Scope. This section shall be divided into the following paragraphs.

1.1 Identification. This paragraph shall contain a full identification of the system and the software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

1.2 System overview. This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarize the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

1.3 Document overview. This paragraph shall summarize the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Government stocking activities.

3. Requirements. This section shall be divided into the following paragraphs to achieve delivery of the software and to establish the requirements that another body of software must meet to be considered a valid copy of the CSCI.

Note: In past versions of this DID, Section 3 required a presentation of the software design describing the "as built" software. That approach was modeled on hardware development, in which the product specification presents the final design as the requirement to which hardware items must be manufactured. For software, however, this approach does not apply. Software "manufacturing" consists of electronic duplication of the software itself, not recreation from design, and the validity of a "manufactured" copy is determined by comparison to the software itself, not to a design description. This section therefore establishes the software itself as the criterion that must be matched for a body of software to be considered a valid copy of the CSCI. The updated software design has been placed in Section 5 below, not as a requirement, but as information to be used to modify, enhance, or otherwise support the software. If any portion of this specification is placed under acquirer configuration control, it should be limited to Section 3. It is the software itself that establishes the product baseline, not a description of the software's design.

3.1 Executable software. This paragraph shall provide, by reference to enclosed or otherwise provided electronic media, the executable software for the CSCI, including any batch files, command files, data files, or other software files needed to install and operate the software on its target computer(s). In order for a body of software to be considered a valid copy of the CSCI's executable software, it must be shown to match these files exactly.

3.2 Source files. This paragraph shall provide, by reference to enclosed or otherwise provided electronic media, the source files for the CSCI, including any batch files, command files, data files, or other files needed to regenerate the executable software for the CSCI. In order

for a body of software to be considered a valid copy of the CSCI's source files, it must be shown to match these files exactly.

3.3 Packaging requirements. This paragraph shall state the requirements, if any, for packaging and marking copies of the CSCI.

4. Qualification provisions. This paragraph shall state the method(s) to be used to demonstrate that a given body of software is a valid copy of the CSCI. For example, the method for executable files might be to establish that each executable file referenced in 3.1 has an identically-named counterpart in the software in question and that each such counterpart can be shown, via bit-for-bit comparison, check sum, or other method, to be identical to the corresponding executable file. The method for source files might be comparable, using the source files referenced in 3.2.

5. Software support information. This section shall be divided into the following paragraphs to provide information needed to support the CSCI.

5.1 "As built" software design. This paragraph shall contain, or reference an appendix or other deliverable document that contains, information describing the design of the "as built" CSCI. The information shall be the same as that required in a Software Design Description (SDD), Interface Design Description (IDD), and Database Design Description (DBDD), as applicable. If these documents or their equivalents are to be delivered for the "as built" CSCI, this paragraph shall reference them. If not, the information shall be provided in this document. Information provided in the headers, comments, and code of the source code listings may be referenced and need not be repeated in this section. If the SDD, IDD, or DBDD is included in an appendix, the paragraph numbers and page numbers need not be changed.

5.2 Compilation/build procedures. This paragraph shall describe, or reference an appendix that describes, the compilation/build process to be used to create the executable files from the source files and to prepare the executable files to be loaded into firmware or other distribution media. It shall specify the compiler(s)/assembler(s) to be used, including version numbers; other hardware and software needed, including version numbers; any settings, options, or conventions to be used; and procedures for compiling/assembling, linking, and building the CSCI and the software system/subsystem containing the CSCI, including variations for different sites, configurations, versions, etc. Build procedures above the CSCI level may be presented in one SPS and referenced from the others.

5.3 Modification procedures. This paragraph shall describe procedures that must be followed to modify the CSCI. It shall include or reference information on the following, as applicable:

a. Support facilities, equipment, and software, and procedures for their use

b. Database/data files used by the CSCI and procedures for using and modifying them

c. Design, coding, and other conventions to be followed

d. Compilation/build procedures if different from those above

e. Integration and testing procedures to be followed

5.4 Computer hardware resource utilization. This paragraph shall describe the "as built" CSCI's measured utilization of computer hardware resources (such as processor capacity, memory capacity, input/output device capacity, auxiliary storage capacity, and communications/network equipment capacity). It shall cover all computer hardware resources included in utilization requirements for the CSCI, in system-level resource allocations affecting the CSCI, or in the software development plan. If all utilization data for a given computer hardware resource is presented in a single location, such as in one SPS, this paragraph may reference that source. Included for each computer hardware resource shall be:

a. The CSCI requirements or system-level resource allocations being satisfied. (Alternatively, the traceability to CSCI requirements may be provided in 6.c.)

b. The assumptions and conditions on which the utilization data are based (for example, typical usage, worst-case usage, assumption of certain events)

c. Any special considerations affecting the utilization (such as use of virtual memory, overlays, or multiprocessors or the impacts of operating system overhead, library software, or other implementation overhead)

d. The units of measure used (such as percentage of processor capacity, cycles per second, bytes of memory, kilobytes per second)

e. The level(s) at which the estimates or measures have been made (such as software unit, CSCI, or executable program)

6. Requirements traceability. This section shall provide:

a. Traceability from each CSCI source file to the software unit(s) that it implements.

b. Traceability from each software unit to the source files that implement it.

c. Traceability from each computer hardware resource utilization measurement given in 5.4 to the CSCI requirements it addresses. (Alternatively, this traceability may be provided in 5.4.)

d. Traceability from each CSCI requirement regarding computer hardware resource utilization to the utilization measurements given in 5.4.

7. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an

alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

A. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g., charts classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendixes may be bound as separate documents for ease in handling. Appendixes shall be lettered alphabetically (A, B, etc.).

END OF DI-IPSC-81441A

DATA ITEM DESCRIPTION

Title: SOFTWARE VERSION DESCRIPTION (SVD)

Number: DI-IPSC-81442A
AMSC Number: N7377
DTIC Applicable: No
Office of Primary Responsibility: N/SPAWAR
Applicable Forms: N/A
Use, Relationships:

Approval Date: 20000111
Limitation: N/A
GIDEP Applicable: No

The Software Version Description (SVD) identifies and describes a software version consisting of one or more Computer Software Configuration Items (CSCIs). It is used to release, track, and control software versions.

The term "version" may be applied to the initial release of the software, to a subsequent release of that software, or to one of multiple forms of the software released at approximately the same time (for example, to different sites).

This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by specific and discrete task requirements as delineated in the contract.

This DID is used when the developer is tasked to identify and record the exact version of software to be delivered to a user, support, or other site.

This DID supersedes DI-IPSC-81442.

Requirements:

1. Reference documents. None.

2. General instructions.

a. Automated techniques. Use of automated techniques is encouraged. The term "document" in this DID means a collection of data regardless of its medium.

b. Alternate presentation styles. Diagrams, tables, matrices, and other presentation styles are acceptable substitutes for text when data required by this DID can be made more readable using these styles.

3. Format. Following are the format requirements.

The specification shall be in contractor format unless otherwise specified on the Contract Data Requirements List (CDRL)(DD 1423). The CDRL should specify whether deliverable data are to be delivered on paper or electronic media; are to be in a given electronic form (such as ASCII,

CALS, or compatible with a specified word processor or other support software); may be delivered in developer format rather than in the format specified herein; and may reside in a computer-aided software engineering (CASE) or other automated tool rather than in the form of a traditional document.

4. Content. The specification shall contain the following:

a. Title page or identifier. The document shall include a title page containing, as applicable: document number; volume number; version/revision indicator; security markings or other restrictions on the handling of the document; date; document title; name, abbreviation, and any other identifier for the system, subsystem, or item to which the document applies; contract number; CDRL item number; organization for which the document has been prepared; name and address of the preparing organization; and distribution statement. For data in a database or other alternative form, this information shall be included on external and internal labels or by equivalent identification methods.

b. Table of contents. The document shall contain a table of contents providing the number, title, and page number of each titled paragraph, figure, table, and appendix. For data in a database or other alternative form, this information shall consist of an internal or external table of contents containing pointers to, or instructions for accessing, each paragraph, figure, table, and appendix or their equivalents.

c. Page numbering/labeling. Each page shall contain a unique page number and display the document number, including version, volume, and date, as applicable. For data in a database or other alternative form, files, screens, or other entities shall be assigned names or numbers in such a way that desired data can be indexed and accessed.

d. Response to tailoring instructions. If a paragraph is tailored out of this DID, the resulting document shall contain the corresponding paragraph number and title, followed by "This paragraph has been tailored out." For data in a database or other alternative form, this representation need occur only in the table of contents or equivalent.

e. Multiple paragraphs and subparagraphs. Any section, paragraph, or subparagraph in this DID may be written as multiple paragraphs or subparagraphs to enhance readability.

f. Standard data descriptions. If a data description required by this DID has been published in a standard data element dictionary specified in the contract, reference to an entry in that dictionary is preferred over including the description itself.

g. Substitution of existing documents. Commercial or other existing documents may be substituted for all or part of the document if they contain the required data.

The numbers shown designate the paragraph numbers to be used in the document.

1. Scope. This section shall be divided into the following paragraphs.

1.1 Identification. This paragraph shall contain a full identification of the system and the software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s). It shall also identify the intended recipients of the SVD to the extent that this identification affects the contents of the software released (for example, source code may not be released to all recipients.)

1.2 System overview. This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarize the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

1.3 Document overview. This paragraph shall summarize the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Government stocking activities.

3. Version description. This section shall be divided into the following paragraphs.

3.1 Inventory of materials released. This paragraph shall list by identifying numbers, titles, abbreviations, dates, version numbers, and release numbers, as applicable, all physical media (for example, listings, tapes, disks) and associated documentation that make up the software version being released. It shall include applicable security and privacy considerations for these items, safeguards for handling them, such as concerns for static and magnetic fields, and instructions and restrictions regarding duplication and license provisions.

3.2 Inventory of software contents. This paragraph shall list by identifying numbers, titles, abbreviations, dates, version numbers, and release numbers, as applicable, all computer files that make up the software version being released. Any applicable security and privacy considerations shall be included.

3.3 Changes installed. This paragraph shall contain a list of all changes incorporated into the software version since the previous version. If change classes have been used, such as the Class I/Class II changes in MIL-STD-973, the changes shall be separated into these classes. This paragraph shall identify, as applicable, the problem reports, change proposals, and change notices associated with each change and the effects, if any, of each change on system operation and on interfaces with other hardware and software. This paragraph does not apply to the initial software version.

3.4 Adaptation data. This paragraph shall identify or reference all unique-to-site data contained in the software version. For software versions after the first, this paragraph shall describe changes made to the adaptation data.

3.5 Related documents. This paragraph shall list by identifying numbers, titles, abbreviations, dates, version numbers, and release numbers, as applicable, all documents pertinent to the software version being released but not included in the release.

3.6 Installation instructions. This paragraph shall provide or reference the following information, as applicable:

a. Instructions for installing the software version

b. Identification of other changes that have to be installed for this version to be used, including site-unique adaptation data not included in the software version

c. Security, privacy, or safety precautions relevant to the installation

d. Procedures for determining whether the version has been installed properly

e. A point of contact to be consulted if there are problems or questions with the installation

3.7 Possible problems and known errors. This paragraph shall identify any possible problems or known errors with the software version at the time of release, any steps being taken to resolve the problems or errors, and instructions (either directly or by reference) for recognizing, avoiding, correcting, or otherwise handling each one. The information presented shall be appropriate to the intended recipient of the SVD (for example, a user agency may need advice on avoiding errors, a support agency on correcting them).

4. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

A. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g., charts classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendixes may be bound as separate documents for ease in handling. Appendixes shall be lettered alphabetically (A, B, etc.).

END OF DI-IPSC-81442A.

DATA ITEM DESCRIPTION

Title: SOFTWARE USER MANUAL (SUM)

Number: DI-IPSC-81443A
AMSC Number: N7378
DTIC Applicable: No
Office of Primary Responsibility: N/SPAWAR
Applicable Forms: N/A
Use, Relationships:

Approval Date: 20000111
Limitation: N/A
GIDEP Applicable: No

The Software User Manual (SUM) tells a hands-on software user how to install and use a Computer Software Configuration Item (CSCI), a group of related CSCI's, or a software system or subsystem. It may also cover a particular aspect of software operation, such as instructions for a particular position or task.

The SUM is developed for software that is run by the user and has a user interface requiring on-line user input or interpretation of displayed output. If the software is embedded in a hardware-software system, user manuals or operating procedures for that system may make separate SUMs unnecessary.

This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by specific and discrete task requirements as delineated in the contract.

This DID is used when the developer is tasked to identify and record information needed by hands-on users of software.

The SUM is an alternative to the Software Input/Output Manual (SIOM) (DI-IPSC-81445A) and Software Center Operator Manual (SCOM) (DI-IPSC-81444A).

This DID supersedes DI-IPSC-81443.

Requirements:

1. Reference documents. None.

2. General instructions.

a. Automated techniques. Use of automated techniques is encouraged. The term "document" in this DID means a collection of data regardless of its medium.

b. Alternate presentation styles. Diagrams, tables, matrices, and other presentation styles are acceptable substitutes for text when data required by this DID can be made more readable using these styles.

3. Format. Following are the format requirements.

The specification shall be in contractor format unless otherwise specified on the Contract Data Requirements List (CDRL)(DD 1423). The CDRL should specify whether deliverable data are to be delivered on paper or electronic media; are to be in a given electronic form (such as ASCII, CALS, or compatible with a specified word processor or other support software); may be delivered in developer format rather than in the format specified herein; and may reside in a computer-aided software engineering (CASE) or other automated tool rather than in the form of a traditional document.

4. Content. The specification shall contain the following:

a. Title page or identifier. The document shall include a title page containing, as applicable: document number; volume number; version/revision indicator; security markings or other restrictions on the handling of the document; date; document title; name, abbreviation, and any other identifier for the system, subsystem, or item to which the document applies; contract number; CDRL item number; organization for which the document has been prepared; name and address of the preparing organization; and distribution statement. For data in a database or other alternative form, this information shall be included on external and internal labels or by equivalent identification methods.

b. Table of contents and index. The document shall contain a table of contents providing the number, title, and page number of each titled paragraph, figure, table, and appendix, and an index providing an alphabetic listing of key terms and concepts covered in the document and the pages or paragraphs in which the terms or concepts are covered. For data in a database or other alternative form, this information shall consist of an internal or external table of contents containing pointers to, or instructions for accessing, each paragraph, figure, table, and appendix or their equivalents.

c. Page numbering/labeling. Each page shall contain a unique page number and display the document number, including version, volume, and date, as applicable. For data in a database or other alternative form, files, screens, or other entities shall be assigned names or numbers in such a way that desired data can be indexed and accessed.

d. Response to tailoring instructions. If a paragraph is tailored out of this DID, the resulting document shall contain the corresponding paragraph number and title, followed by "This paragraph has been tailored out." For data in a database or other alternative form, this representation need occur only in the table of contents or equivalent.

e. Multiple paragraphs and subparagraphs. Any section, paragraph, or subparagraph in this DID may be written as multiple paragraphs or subparagraphs to enhance readability.

f. Standard data descriptions. If a data description required by this DID has been published in a standard data element dictionary specified in the contract, reference to an entry in that dictionary is preferred over including the description itself.

g. Substitution of existing documents. Commercial or other existing documents may be substituted for all or part of the document if they contain the required data.

The numbers shown designate the paragraph numbers to be used in the document.

1. Scope. This section shall be divided into the following paragraphs.

1.1 Identification. This paragraph shall contain a full identification of the system and the software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

1.2 System overview. This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarize the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

1.3 Document overview. This paragraph shall summarize the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

2. Referenced documents. This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Government stocking activities.

3. Software summary. This section shall be divided into the following paragraphs.

3.1 Software application. This paragraph shall provide a brief description of the intended uses of the software. Capabilities, operating improvements, and benefits expected from its use shall be described.

3.2 Software inventory. This paragraph shall identify all software files, including databases and data files, that must be installed for the software to operate. The identification shall include security and privacy considerations for each file and identification of the software necessary to continue or resume operation in case of an emergency.

3.3 Software environment. This paragraph shall identify the hardware, software, manual operations, and other resources needed for a user to install and run the software. Included, as applicable, shall be identification of:

a. Computer equipment that must be present, including amount of memory needed, amount of auxiliary storage needed, and peripheral equipment such as printers and other input/output devices

b. Communications equipment that must be present

c. Other software that must be present, such as operating systems, databases, data files, utilities, and other supporting systems

d. Forms, procedures, or other manual operations that must be present

e. Other facilities, equipment, or resources that must be present

3.4 Software organization and overview of operation. This paragraph shall provide a brief description of the organization and operation of the software from the user's point of view. The description shall include, as applicable:

a. Logical components of the software, from the user's point of view, and an overview of the purpose/operation of each component

b. Performance characteristics that can be expected by the user, such as:

1) Types, volumes, rate of inputs accepted

2) Types, volume, accuracy, rate of outputs that the software can produce

3) Typical response time and factors that affect it

4) Typical processing time and factors that affect it

5) Limitations, such as number of events that can be tracked

6) Error rate that can be expected

7) Reliability that can be expected

c. Relationship of the functions performed by the software with interfacing systems, organizations, or positions

d. Supervisory controls that can be implemented (such as passwords) to manage the software

3.5 Contingencies and alternate states and modes of operation. This paragraph shall explain differences in what the user will be able to do with the software at times of emergency and in various states and modes of operation, if applicable.

3.6 Security and privacy. This paragraph shall contain an overview of the security and privacy considerations associated with the software. A warning shall be included regarding making unauthorized copies of software or documents, if applicable.

3.7 Assistance and problem reporting. This paragraph shall identify points of contact and procedures to be followed to obtain assistance and report problems encountered in using the software.

4. Access to the software. This section shall contain step-by-step procedures oriented to the first time/occasional user. Enough detail shall be presented so that the user can reliably access the software before learning the details of its functional capabilities. Safety precautions, marked by WARNING or CAUTION, shall be included where applicable.

4.1 First-time user of the software. This paragraph shall be divided into the following subparagraphs.

4.1.1 Equipment familiarization. This paragraph shall describe the following as appropriate:

a. Procedures for turning on power and making adjustments

b. Dimensions and capabilities of the visual display screen

c. Appearance of the cursor, how to identify an active cursor if more than one cursor can appear, how to position a cursor, and how to use a cursor

d. Keyboard layout and role of different types of keys and pointing devices

e. Procedures for turning power off if special sequencing of operations is needed

4.1.2 Access control. This paragraph shall present an overview of the access and security features of the software that are visible to the user. The following items shall be included, as applicable:

a. How and from whom to obtain a password

b. How to add, delete, or change passwords under user control

c. Security and privacy considerations pertaining to the storage and marking of output reports and other media that the user will generate

4.1.3 Installation and setup. This paragraph shall describe any procedures that the user must perform to be identified or authorized to access or install software on the equipment, to perform the installation, to configure the software, to delete or overwrite former files or data, and to enter parameters for software operation.

4.2 Initiating a session. This paragraph shall provide step-by-step procedures for beginning work, including any options available. A checklist for problem determination shall be included in case difficulties are encountered.

4.3 Stopping and suspending work. This paragraph shall describe how the user can cease or interrupt use of the software and how to determine whether normal termination or cessation has occurred.

5. Processing reference guide. This section shall provide the user with procedures for using the software. If procedures are complicated or extensive, additional Sections 6, 7, ... may be added in the same paragraph structure as this section and with titles meaningful to the sections selected. The organization of the document will depend on the characteristics of the software being documented. For example, one approach is to base the sections on the organizations in which users work, their assigned positions, their work sites, or the tasks they must perform. For other software, it may be more appropriate to have Section 5 be a guide to menus, Section 6 be a guide to the command language used, and Section 7 be a guide to functions. Detailed procedures are intended to be presented in subparagraphs of paragraph 5.3. Depending on the design of the software, the subparagraphs might be organized on a function-by-function, menu-by-menu, transaction-by-transaction, or other basis. Safety precautions, marked by WARNING or CAUTION, shall be included where applicable.

5.1 Capabilities. This paragraph shall briefly describe the interrelationships of the transactions, menus, functions, or other processes in order to provide an overview of the use of the software.

5.2 Conventions. This paragraph shall describe any conventions used by the software, such as the use of colors in displays, the use of audible alarms, the use of abbreviated vocabulary, and the use of rules for assigning names or codes.

5.3 Processing procedures. This paragraph shall explain the organization of subsequent paragraphs, e.g., by function, by menu, by screen. Any necessary order in which procedures must be accomplished shall be described.

5.3.x (Aspect of software use). The title of this paragraph shall identify the function, menu, transaction, or other process being described. This paragraph shall describe and give options and examples, as applicable, of menus, graphical icons, data entry forms, user inputs, inputs from other software or hardware that may affect the software's interface with the user, outputs, diagnostic or error messages or alarms, and help facilities that can provide on-line descriptive or tutorial information. The format for presenting this information can be adapted to the particular characteristics of the software, but a consistent style of presentation shall be used, i.e., the descriptions of menus shall be consistent, the descriptions of transactions shall be consistent among themselves.

5.4 Related processing. This paragraph shall identify and describe any related batch, offline, or background processing performed by the software that is not invoked directly by the user and is not described in paragraph 5.3. Any user responsibilities to support this processing shall be specified.

5.5 Data backup. This paragraph shall describe procedures for creating and retaining backup data that can be used to replace primary copies of data in event of errors, defects, malfunctions, or accidents.

5.6 Recovery from errors, malfunctions, and emergencies. This paragraph shall present detailed procedures for restart or recovery from errors or malfunctions occurring during processing and for ensuring continuity of operations in the event of emergencies.

5.7 Messages. This paragraph shall list, or refer to an appendix that lists, all error messages, diagnostic messages, and information messages that can occur while accomplishing any of the user's functions. The meaning of each message and the action that should be taken after each such message shall be identified and described.

5.8 Quick-reference guide. If appropriate to the software, this paragraph shall provide or reference a quick-reference card or page for using the software. This quick-reference guide shall summarize, as applicable, frequently used function keys, control sequences, formats, commands, or other aspects of software use.

6. Notes. This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document. If Section 5 has been expanded into section(s)6,..., this section shall be numbered as the next section following section n.

A. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g., charts classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendixes may be bound as separate documents for ease in handling. Appendixes shall be lettered alphabetically (A, B, etc.).

END OF DI-IPSC-81443A.

DATA ITEM DESCRIPTION

Form Approved
OMB No. 0704-0188

1. TITLE	2. IDENTIFICATION NUMBER
TEST PROCEDURE	DI-NDTI-80603

3. DESCRIPTION/PURPOSE

3.1 The test procedure identifies the step-by-step testing operations to be performed on items under going developmental, qualification, or acceptance testing. It identifies items to be tested, the test equipment and support required, the test conditions to be imposed, the parameters to be measured, and the pass/fail criteria against which the test results

(continued on page 2)

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6a. DTIC APPLICABLE	6b. GIDEP APPLICABLE
880601	G/T2137		

7. APPLICATION/INTERRELATIONSHIP

7.1 This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by the specific and discrete task requirements as delineated in the contract.

7.2 This DID is applicable to contracts requiring tests to be performed for the purpose of developmental or environmental evaluation, acceptance testing, and item qualification testing.

7.3 This DID supersedes DI-T-5248 and DI-T-5301

8. APPROVAL LIMITATION	9a. APPLICABLE FORMS	9b. AMSC NUMBER
		G4428

10. PREPARATION INSTRUCTIONS

10.1 Format Requirements. The test procedure shall be in the contractor's format on 8 1/2 x 11 inch paper. It shall be bound in such a manner that pages may be removed or inserted without damage or mutilation.

10.2 Content requirements. The test procedure shall contain the following:

10.2.1 Front matter.

10.2.1.1 Cover and title page. The following information shall be included on the cover and title page:

a. Date of issue.
b. Revision date (If applicable).
c. Procedure document identification number.
d. Contract number.
e. Contractor's name and address.
f. Type of procedure, including purpose (e.g., first article test, developmental evaluation, qualification, environmental (specify), acceptance, or other).
g. Identification of the system, subsystem, or equipment to be tested.
h. Security classification (if applicable)

(continued on page 2)

11. DISTRIBUTION STATEMENT

DISTRIBUTION STATEMENT A: Approved for public release, distribution is unlimited.

Block 3. DESCRIPTION/PURPOSE

will be measured. The document is a compilation of individual test procedures for related elements of a system, subsystem, or equipment.

Block 10. PREPARATION INSTRUCTIONS (continued)

10.2.1.2 Record of changes. A record of change pages shall be included to provide for tracking of changes to the test procedures.

10.2.1.3 Table of contents. A table of contents is required when more than one test procedure is included in the test procedures document. It shall identify the page location of each procedure number, procedure title, and related equipment nomenclature.

10.2.2 Body of document. For each test procedure, the following information is required:

10.2.2.1 Procedure number. Each procedure shall have an unique number assigned to it.

10.2.2.2 Title of procedure. The title should relate to the purpose of the test.

10.2.2.3 Introduction. The following shall be addressed in the introduction:

10.2.2.3.1 Purpose of test. (As specified in the contract tasking document.)

10.2.2.3.2 System, subsystem, or equipment to be tested. The following identification information shall be provided:

a. Nomenclature
b. Model or part number.
c. Type of test item (prototype, production item, laboratory model, etc.)
d. Applicable specification.

10.2.2.3.3 Test requirements. Includes the following, each related to the prescribing contract requirement paragraph (specification, standard, plan, or work statement).

a. Required tests, and parameters to be measured.
b. Performance requirements, acceptance or compliance limits, and environmental criteria.

10.2.2.3.4 Referenced documents. A list by title, number, date, and source of those documents cited in the test procedure.

Block 10. PREPARATION INSTRUCTIONS

10.2.2.4 Required test equipment. Includes the following for each piece of test equipment required to perform the procedure:

a. Nomenclature.
b. Use of test equipment.
c. Model Number (if applicable).
d. Manufacturer (if mandatory).
e. Accuracy and calibration requirements.
f. Range or spectrum of measurements required.

10.2.2.5 Table of tests. This table lists each test performed under the procedure in the sequence it is to be performed, identified to the procedure paragraph and the related specification/contract requirement.

10.2.2.6 Step-by-step procedure. The following shall be included for each step of the test procedure:

a. Test set-up diagrams, including test equipment connections.
b. Input and output instrumentation points.
c. Test item operating limits and test conditions to be imposed.
d. Performance parameters to be measured.
e. Step-by-step operations to obtain the required data.
f. Caution and safety warnings as appropriate.

10.2.2.7 Data sheets. Data sheets shall be included with the procedure, or be separately attached at the end of all procedures. They shall provide for:

a. Identification of item tested, including model and serial numbers.
b. Recording of test measurements.
c. Identification of required or objective performance values, with tolerances.
d. Identification of applicable procedure paragraph.
e. Date of test.
f. Signature of technician or inspector performing the tests.

10.2.2.8 Support requirements. Any special support requirements would be included in this section, such as:

a. Use of special facilities or test ranges.
b. Personnel requirements (numbers, types, qualifications).
c. Unusual electrical, hydraulic, pneumatic, etc. requirements.
d. Support equipment requirements.

DATA ITEM DESCRIPTION

Form Approved
OMB No. 0704-0188

1. TITLE	2. IDENTIFICATION NUMBER
TEST/INSPECTION REPORT	DI-NDTI-80809B

3. DESCRIPTION/PURPOSE

3.1 The test/inspection report is used to document test/inspection results, findings, and analyses that will enable the government or contracting agency to evaluate compliance with system requirements, performance objectives, specifications, and test/inspection plans.

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6a. DTIC APPLICABLE	6b. GIDEP APPLICABLE
970124	F/AFMC-DOP		

7. APPLICATION/INTERRELATIONSHIP

7.1 This data item description (DID) contains the format and content preparation instructions for the data product generated by the specific and discrete task requirement as delineated in the contract.

7.2 This DID is applicable to engineering (developmental), preliminary qualification, qualification, and acceptance testing.

7.3 This DID supersedes DI-NDTI-80809A and DI-MISC-80653.

8. APPROVAL LIMITATION	9a. APPLICABLE FORMS	9b. AMSC NUMBER
		F7231

10. PREPARATION INSTRUCTIONS

10.1 Format. Contractor format is acceptable. Organize the information required by paragraph 10.2 and its subparagraphs in a manner that facilitates presentation and understanding

10.2 Content. The test/inspection report shall contain the following information, as applicable.

10.2.1 Cover and title page. The following information shall appear on the outside front cover and title page:

a. Report date.
b. Report number (contractor or government)
c. Contractor's name, address, and commercial and government entity code.
d. Contract number and contract line item number or sequence number (if applicable).
e. Type of test/inspection (for example, first article acceptance test, quality conformance inspection, developmental test, qualification test, environmental test).
f. Identification of item tested/inspected.
g. Date or period of test/inspection.
h. Name and address of requiring government activity.
i. Security classification, downgrading and declassifying information, if applicable.

(Continued on page 2)

11. DISTRIBUTION STATEMENT

DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.

Block 10, Preparation Instructions (continued)

10.2.2 Table of contents. The table of contents shall identify the following:

a. The title and starting page of each major section, paragraph, and appendix of the report.
b. The page, identifying number, and title of each illustration (for example; figure, table, photograph, chart, and drawing).

10.2.3 Introduction. The introduction shall include the following information:

10.2.3.1 Test/inspection objective(s). The specific test/inspection objective(s) as specified in the contract tasking document.

10.2.3.2 Item(s) tested/inspected. Complete identification of the item(s) tested/inspected including the following:

a. Nomenclature.
b. National stock number.
c. Model number, part number, and serial number
d. Type of item (for example, prototype, production item, laboratory model).
e. Serial or lot number.
f. Applicable engineering changes.
g. Production item specification, if applicable.
h. Date of manufacture.

10.2.3.3 Test/inspection requirements. Complete identification of the test/inspection requirements correlated to contractual requirements including the following:

a. Required test/inspection parameters.
b. Performance requirements, acceptance or compliance limits, and environmental criteria.

10.2.4 Summary. Complete test/inspection report summary including the following:

a. A brief discussion of the significant test/inspection results, observations, conclusions, and recommendations covered in greater detail elsewhere in the report.
b. Proposed corrective actions and schedules for failures or problems encountered.
c. Identification of deviations, departures, or limitations encountered, referenced to the contract requirements.
d. Tables, graphs, illustrations, or charts as appropriate to simplify the summary data.

10.2.5 Reference documents. Complete identification of all documents referenced in the test/inspection report including the following, as applicable:

a. Prior test/inspection reports on the same item.
b. Test/inspection plans and procedure documents.
c. Prior certifications of compliance.
d. Contractor's file designation where test/inspection records are maintained.
e. Input parameters used.

The applicable issue of the documents cited therein, including their approval dates and dates of any applicable amendments, notices, and revisions, shall be

10.2.6 Body of report. The body of the test/inspection report shall be as follows:

10.2.6.1 Test equipment identification. Complete identification of each item of test equipment used in the test/inspection including the following:

a. Nomenclature.
b. Model number.
c. Serial number.
d. Manufacturer.
e. Calibration status.
f. Accuracy data.
g. Comments, if applicable.

10.2.6.2 Test/inspection facility installation and set-up. Complete description of the physical set-up used in conducting the test/inspection to include the following:

a. Location or orientation of the item.
b. Location, orientation, or settings of test equipment and instrumentation.
c. Location, orientation, or settings of sensors and probes.
d. Location or orientation of interconnections, cables, and hoop-ups.
e. Electrical power, pneumatic, fluidic, and hydraulic requirements.

Drawings, illustrations, and photographs may be used for clarification.

10.2.6.3 Test/inspection procedures. Complete description of the procedures used in conducting the test/inspection to include the following:

a. Item selection and inspection that verified suitability for test/inspection.
b. Summarized sequence of testing/inspection steps, including a description of how the item was operated during the test/inspection, and any control conditions imposed.

10.2.6.4 Test/inspection results and analysis. A copy of all test/inspection results and analysis to include the following:

10.2.6.4.1 Recorded data. The actual recorded data (for example, log book entries, oscillographs, instrument readings, plotter graphs). If the recorded data is extensive, provide it in an appendix.

10.2.6.4.2 Test/inspection results. Identification of all test/inspection results to include the following:

a. Matrices comparing results achieved against test/inspection objectives or requirements.
b. A discussion of these matrices as to their significance, and how they compare to any prior test/inspections.
c. Calculation examples.
d. Discussion of anomalies, deviations, discrepancies, or failures, including their impact, causes, and proposed corrective actions. The discussion shall address discrepancies between design requirements and the tested/inspected configuration.

10.2.6.5 Conclusions. Test/inspection conclusions distinguished between objective and subjective to include the following:

a. The effectiveness of the test/inspection procedures in measuring item performance.

b. The success or failure of the item to meet required test/inspection objectives.

c. The need for repeat, additional, or alternative tests/inspections.

d. The need for item redesign or further development.

e. The need for improved test/inspection procedures, techniques, or facilities.

f. The adequacy and completeness of the test/inspection requirements.

10.2.6.6 Recommendations. Recommendations appropriate to the test/inspection results and conclusions including the following:

a. Acceptability of the item tested/inspected (pass or fail).
b. Additional testing/inspection required.
c. Redesign required.
d. Problem resolution.
e. Test/inspection procedure or facility improvements.
f. Disposition of items tested/inspected.
g. Documentation changes required.
h. Testing/inspection improvements.

10.2.7 Authentication. The following certifications shall be included, as applicable:

10.2.7.1 Authentication of test/inspection results. A statement that the test/inspection was performed in accordance with applicable test/inspection plans and procedures, and that the results are true and accurate. The authentication shall include the signature of the contractor personnel that performed the test(s)/inspection(s), a contractor representative authorized to make such certification, and any government witnesses.

10.2.7.2 Authentication of prior validation. A statement identifying those requirements not tested/inspected or measured that were previously validated. Include identification of the data and method employed for such validation (for example, prior test/inspection, analytical verification, equivalent item, and so on). The authentication shall include the signature of a contractor representative authorized to make such authentication and any government witness.

10.2.7.3 Authentication of acceptability. A statement that the item tested/inspected either passed or failed item acceptability requirements. This authentication shall include the signature of a contractor representative authorized to make such authentication and any government witness.

10.2.8 Appendices. Appendices shall be used to append detailed test/inspection data, drawings, photographs, or other documentation too voluminous to include in the main body of the report. This includes referenced documentation not previously provided by the government, and test/inspection reports from any associated test/inspection activity that may have performed some of the testing/inspecting requirements.

End of DI-80809

DATA ITEM DESCRIPTION

Form Approved
OMB No. 0704-0188

1. TITLE
Operation and Maintenance Instructions for Research and Development (R&D) Equipment

2. IDENTIFICATION NUMBER
DI-MISC-81414

3. DESCRIPTION / PURPOSE
3.1 These instructions provide government personnel necessary operating, diagnostic, and repair procedures for using and maintaining R&D equipment supporting test assets.

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6a. DTIC APPLICABLE	6b. GIDEP APPLICABLE
940801	F/46TW-TSTD		

7. APPLICATION / INTERRELATIONSHIP
7.1 This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by the specific and discrete task requirements as delineated in the contract.

7.2 This DID is applicable only to the R&D equipment not destined for the Air Force inventory.

7.3 This DID supersedes DI-S-30599.

8. APPROVAL LIMITATION	9a. APPLICABLE FORMS	9b. AMSC NUMBER
		F7051

10. PREPARATION INSTRUCTIONS
10.1 Format. Contractor format is acceptable.

10.2 Content. Content shall be sufficient for technicians to operate the equipment and repair and replace components. The content shall include the following:

a. Complete operation and calibration instructions including safety hazards, if any.

b. Theory of operation, diagnostic tests, repair, and preventive maintenance.

c. Illustrations, diagrams, and schematics necessary to show interconnections between unit and associated equipment and assembly and installation of the unit and its components.

d. A parts list including commercial part numbers.

e. A test point list with normal voltages, currents, and waveforms.

f. A list of referenced documents or illustrations.

11. DISTRIBUTION STATEMENT
DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

DATA ITEM DESCRIPTION

Title: PRODUCT DRAWINGS AND ASSOCIATED LISTS

Number: DI-SESS-81000B
ASMC Number: A7429
DTIC Applicable:
Office of Primary Responsibility: AR
Applicable Forms:
Approval Date: 20011214
Limitation:
GIDEP Applicable:

Use/relationship: Product Drawings and Associated Lists provide engineering data to support competitive procurement and maintenance for items interchangeable with the original items. These drawings represent the highest level of design disclosure.

a. This Data Item Description (DID) contains the format and content preparation instructions for Product Drawings and Associated Lists resulting from the work task described in 3.6.3 of MIL-DTL-31000B.

b. This DID is applicable to acquisitions of military systems, equipment, and components. It is intended for acquiring drawings and Associated Lists at the end of the Engineering and Manufacturing Development Phase and during subsequent phases of the DoD materiel life cycle.

c. It is not intended that all the requirements contained herein should be applied to every program. This DID should be tailored to the minimum data requirements of the applicable contract or purchase order.

d. This DID supersedes DI-DRPR-81000A which superseded DI-DRPR-81000.

e. This DID is related to DI-SESS-81001B, DI-SESS-81002B, and DI-SESS-81003B.

f. A purchased item, as defined by ASME Y14.24, an item which is sold or traded in the course of conducting normal business operations, is used by commercial industry, or is a specialized version of a supplier's general product line which he routinely customizes. Purchased items as used herein have also been referred to as vendor items or vendor-developed items.

Requirements:

1. Reference Documents, The applicable issue of documents cited herein, including their approval dates and the dates of applicable amendments, notices, and revisions, shall be as cited in the contract.

2. General. Product Drawings and Associated Lists shall meet the requirements of MIL-DTL-31000B. Product Drawings and Associated Lists shall provide the design disclosure information necessary to enable a manufacturer of similar products at the same or similar state of the art to produce and maintain quality control of item(s) so that the resulting physical and functional characteristics duplicate those of the specified item. These drawings shall:

a. Reflect the end product at its current level of design maturity.

b. Provide the engineering data for Logistics Support products.

c. Provide the necessary data to permit competitive acquisition of the original item(s).

3. Format. Product Drawings and Associated Lists shall be in either the contractor's format or Government's format as specified on the TDP Option Selection Work Sheet incorporated into the contract or purchase order.

4. Content. Product Drawings and Associated Lists shall conform to the requirements of ASME Y14.100, or, if applicable, ASME Y14.100 and Appendices B through E, as required, and ASME Y14.34M. They shall document directly or by reference the following, as applicable:

a. Details of unique processes, i.e., not published or generally available to industry, when essential to design and manufacture.

b. Performance ratings.

c. Dimensional and tolerance data.

d. Critical manufacturing processes and assembly sequences.

e. Toleranced input and output characteristics.

f. Diagrams.

g. Mechanical and electrical connections.

h. Physical characteristics, including form, finishes, and protective coatings.

i. Details of material identification, including material condition, and mandatory treatments and coatings.

j. Inspection, test and evaluation criteria.

k. Equipment calibration requirements.

l. Quality assurance requirements.

m. Hardware marking requirements.

n. Requirements for reliability, maintainability, environmental conditioning, shock and vibration testing and other operational or functional tests.

o. Vendor substantiation data when required by the contract or purchase order.

p. Requirements for programming software into devices or assemblies including a description of the input media and the procedures for validating that the software has been installed correctly.

q. Special consideration items and processes.

5. Item definition. All parameters required to define each unit, assembly, subassembly, part or material shall be presented on the applicable drawing. This includes data such as:

a. All necessary mechanical dimensions to fully define fabrication, acceptance, interface or installation of the item depicted.

b. All necessary electrical parameters to fully define fabrication, acceptance, interface or installation of the item depicted.

c. All other necessary physical parameters to fully define fabrication, acceptance, interface or installation of the item depicted, i.e., weight, pressure, viscosity, etc.

d. All necessary environmental conditions which units, assemblies, subassemblies, parts and materials must meet to perform effectively in the end item, such that the end item will meet its specification requirements.

6. CAGE code and document numbers. Product Drawings and Associated Lists shall be identified with the contractor's CAGE code and contractor document numbers or with a Government CAGE code and document numbers as specified in the TDP Option Selection Work Sheet incorporated in the contract or purchase order.

7. Selection of drawings. The types of drawings required will vary according to the complexity of the contract end item. The TDP Option Selection Work Sheet incorporated in the contract or purchase order will specify whether the contractor or the Government is responsible for selecting the types of drawings and Associated Lists.

7.1. Vendor Item Control Drawings. Vendor Item Control Drawings shall be used to specify the requirements for purchased items (see f, under Use/Relationship) when such items have been approved for use in the design and are used without alteration, selection or source qualification (testing of an item prior to procurement action to ensure that it satisfies the specified requirements).

7.2. Source Control Drawings. Source Control Drawings shall be used to specify the requirements for purchased items (see f, under Use/Relationship) only when such items have been approved for use in the design and:

a. the item is for a critical application and

b. the requirements can be met by an item from one or more sources and

c. the application required source qualification (testing of an item prior to procurement action to ensure that it satisfies the specified requirements).

7.3. Standardized Microcircuit Drawings. Standardized Microcircuit Drawings (MIL-HDBK-780) shall be used to specify the requirements of microcircuits.

DATA ITEM DESCRIPTION

Title: **ENGINEERING CHANGE PROPOSAL (ECP)**

Number:	DI-CMAN-80639C	**Approval Date:**	20000930
AMSC Number:	D7388	**Limitation:**	N/A
DTIC Applicable:	No	**GIDEP Applicable:**	No
Office of Primary Responsibility:	D/DUSD(AT&L)SE		
Applicable Forms:	N/A		

Use, Relationships: An Engineering Change Proposal (ECP) provides the documentation in which the engineering change is described. It includes change impacts to systems, configuration items and other associated configuration documentation affected by the proposed change. In addition, it typically describes how the proposed change will be implemented along with providing estimated schedules and associated costs.

This Data Item Description (DID) contains the format, content and preparation instructions for the data product resulting from the work task specified in the contract. This DID is used in conjunction with a Notice of Revision (NOR) (DI-CMAN-80642B). A requirement for NORs should be contractually imposed in conjunction with this DID.

Data Item submittal in Extensible Markup Language (XML) is acceptable. An XML Document Type Definition (DTD), associated XML document template, and other information is available from http://www.geia.org/836/

This DID supersedes DI-CMAN-80639B.

Requirements:

1. Reference documents. The applicable issue of any documents cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions, shall be as specified in the contract.

2. Format and content. The Engineering Change Proposal (ECP) shall be prepared in contractor format. . The ECP content shall include, where applicable, the following information:

a. the change priority, change classification, and change justification

b. a complete description of the change to be made and the need for that change

c. complete listing of other configuration items impacted by the proposed change and a description of the impact on those CIs.

d. proposed changes to documents controlled by the government.

e. proposed serial (or lot) number effectivities of units to be produced in, or retrofitted to, the proposed configuration.

f. recommendation about the way a retrofit should be accomplished.

g. impacts to any logistics support elements (such as software, manuals, spares, tools, and similar) being utilized by government personnel in support of the product.

h. impacts to the operational use of the product

i. complete estimated life-cycle cost impact of the proposed change

j. milestones relating to the processing and implementation of the engineering change

The following references may be useful in defining content: MIL-HDBK-61, Configuration Management Guidance (paragraph 4.2 and Table 4-6) and ANSI/EIA-649-1998, National Consensus Standard for Configuration Management (paragraph 5.3.1).

END OF DI-CMAN-80639C.

DATA ITEM DESCRIPTION

Title: **NOTICE OF REVISION (NOR)**

Number:	DI-CMAN-80642C	**Approval Date:**	20000930
AMSC Number:	D7390	**Limitation:**	N/A
DTIC Applicable:	No	**GIDEP Applicable:**	No
Office of Primary Responsibility:	D/DUSD(AT&L)SE		
Applicable Forms:	N/A		

Use, Relationships: A Notice of Revision (NOR) describes the proposed changes to a technical document being requested by an Engineering Change Proposal (ECP).

After ECP approval, the NOR is forwarded to the custodian of each specification, drawing, associated list, or other applicable document(s) so they can make the required documentation changes.

This Data Item Description (DID) contains the format, content and preparation instructions for the data product resulting from the work task specified in the contract. This DID is used in conjunction with an Engineering Change Proposal (ECP), DI-CMAN-80639C. A requirement for ECPs should be contractually imposed in conjunction with this DID. This DID is also used with Specification Change Notices (SCNs), DI-CMAN-80643C.

Data Item submittal in Extensible Markup Language (XML) is acceptable. An XML Document Type Definition (DTD), associated XML document template, and other information is available from http://www.geia.org/836/

This DID supersedes DI-CMAN-80642B.

Requirements:

1. Reference documents. The applicable issue of any documents cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions, shall be as specified in the contract.

2. Format and content. The Notice of Revision (NOR) shall be prepared in contractor format. The NOR content shall include, where applicable, the following information:
   a. a listing of the identifier, revision level, and title of the affected document
   b. the identifier of the ECP which proposed the change
   c. a complete description of the changes to be made to the affected document

The following references may be useful in defining content: MIL-HDBK-61, Configuration Management Guidance (paragraph 4.4 and Table 4-10) and ANSI/EIA-649-1998, National Consensus Standard for Configuration Management (paragraph 5.3.3).

END OF DI-CMAN-80642C.

DATA ITEM DESCRIPTION

Form Approved
OMB No. 0704-0188

1. TITLE	2. IDENTIFICATION NUMBER
CONTRACTOR LOGISTIC SUPPORT MAINTENANCE REPORT	DI-ILSS-80965

3. DESCRIPTION/PURPOSE

3.1 The Contractor Logistic Support Maintenance Report is used to collect maintenance data from the logistic support contractor.

3.2 The maintenance data is used for updating and tracking maintenance actions, parts usage, selected failure analysis and resolution, and inventory stockage levels.

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6a. DTIC APPLICABLE	6b. GIDEP APPLICABLE
900416	A/AMCCOM-MA		

7. APPLICATION/INTERRELATIONSHIP

7.1 This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by the specific task requirements included in the contract.

7.2 This DID is applicable when a contractor is required to perform logistic support maintenance.

8. APPROVAL LIMITATION	9a. APPLICABLE FORMS	9b. AMSC NUMBER
		A4919

10. PREPARATION INSTRUCTIONS

10.1 Format and Content. The Contractor Logistic Support Maintenance Report shall consist of a cover sheet and nine sections numbered sequentially. The cover sheet shall display the title, date, the month covered by the report, the full address to whom the report was sent, the current contract number, and the preparer's and approving official's signature block and signature.

10.1.1 Section I, Consolidated Monthly Maintenance Summary. This section provides a basis for analysis and evaluation of the performance, life, and maintenance requirements of materiel installed, operated, and maintained by the contractor. It also contains verification that maintenance has been performed (prior to turnover).

a. Section I includes historical and running records covering every item of significance affecting the life, performance, and maintenance requirements of the materiel. These records shall include provisions for analysis of the operation and performance of the materiel in progress to determine status and trends which require modification or correction. Corrective action may include changes in manpower, skills, procedures, or repair parts supply.

b. The format of Section I shall include all data elements listed below:

(1) End Item. Enter the part number of the end item/assembly being inducted for repair.

(2) Nomenclature. Enter the nomenclature of the item/assembly being inducted for repair.

11. DISTRIBUTION STATEMENT

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

10. PREPARATION INSTRUCTIONS (Cont'd)

(3) Site. Enter all site names where maintenance actions are being performed for each item/assembly being inducted for repair.

(4) Month Begin. Enter the number of items/assemblies that were awaiting maintenance or are in maintenance at the beginning of the month being reported.

(5) New Inductions. Enter the number of items/assemblies that were inducted for repair during the month being reported.

(6) Repairs Completed. Enter the number of repairs completed for each item/assembly for the month being reported.

(7) In Repair At Month End. Enter the number of items/assemblies that are awaiting repair or are in repair at the end of the month being reported.

(8) Mean Time To Repair (MTTR). Enter the summation of all repair times divided by the number of repair actions for that item/assembly for the month being reported.

(9) Contractor Turnaround Time (CTAT). Enter the number of work days the item/assembly was in the maintenance shop divided by the number of items/assemblies repaired for the month being reported.

(10) Total. Total columns see 10.1.1.b.(4) through 10.1.1.b.(7) above at the end of each item/assembly.

(a) For the MTTR total at the end of each item/assembly, the following formula must be used. Multiply the MTTR for the individual sites by the repairs completed at that site. Sum this product for all the sites reporting the item, and divide the total by the total sum of the repairs completed on that item at that site.

(b) For the CTAT total at the end of each item/assembly, the following formula must be used. Multiply the CTAT for the individual sites by the repairs completed at that site. Sum this product for all the sites reporting the item, and divide the total by the total sum of the repairs completed on that item at that site.

10.1.2 Section II, Site Monthly Maintenance Summary. This section contains the same type information as is required in Section I, except that it reflects maintenance information for each maintenance site separately. The format of Section II shall include all data elements as follows.

a. Site. Enter the site name where maintenance actions are being performed for each item/assembly.

b. End Item. Enter the part number of all end items/assemblies being inducted for repair.

c. Nomenclature. Enter the nomenclature of the items/assemblies being inducted for repair.

d. Month Begin. Enter the number of items/assemblies that were awaiting maintenance or are in maintenance at the beginning of the month being reported.

10. PREPARATION INSTRUCTIONS (Cont'd)

e. New Inductions. Enter the number of items/assemblies that were inducted for repair during the month being reported.

f. Repairs Completed. Enter the number of repairs completed for each item/assembly for the month being reported.

g. In Repair at Month End. Enter the number of items/assemblies that are awaiting repair or are in repair at the end of the month being reported.

h. Mean Time To Repair (MTTR). Enter the summation of all repair times divided by the number of repair actions for that item/assembly for the month being reported.

i. Contractor Turnaround Time (CTAT). Enter the number of work days the item/assembly was in the maintenance shop divided by the number of items/assemblies repaired for the month being reported.

j. Total. Total columns see 10.1.2.d through 10.1.2.g above at the end of each site.

k. A separate entry for sites performing canvas refurbishment will be provided at the end of this section containing the above data elements.

10.1.3 Section III, Consolidated Inventory Usage Report. This section provides a basis for analysis and evaluation of parts/assemblies used in the repair and maintenance of materiel.

a. This section includes a running record covering all parts/assemblies used for all sites in a consolidated inventory usage report.

b. The format of Section III shall include all data elements as follows.

(1) Part Number. Enter the part number of the part/assembly used for the month being reported.

(2) Nomenclature. Enter the nomenclature of the part/assembly used for the month being reported.

(3) Usage. Enter the total number of parts/assemblies used by all maintenance sites for the month being reported.

10.1.4 Section IV, Site Inventory Usage Report. This section contains the same type information as is required, see 10.1.3 above, except that it reflects usage information for each maintenance site separately. The format of Section IV shall include all data elements as follows.

a. Site. Enter the site name where usage data is being received from.

b. Part Number. Enter the part number of the part/assembly used for the month being reported.

c. Nomenclature. Enter the nomenclature of the part/assembly used for the month being reported.

10. PREPARATION INSTRUCTIONS (Cont'd)

d. Usage. Enter the total number of parts/assemblies used for each maintenance site for the month being reported.

e. Site Total. Total column see 10.1.4.d above at the end of each site.

10.1.5 Section V, Stock Status Report. This section contains inventory stockage levels at the contractor's warehouses and maintenance sites, quantities on order by the contractor through various parts buys, the minimum reorder point for parts, and the maintenance sites average monthly parts usage. This information is used to analyze parts stockage levels and availability of parts, as well as usage of parts.

a. The format of Section V shall include all data elements as follows.

(1) Part Number. Enter the part number of all parts/assemblies maintained in the contractor's inventory.

(2) Nomenclature. Enter the nomenclature of each part/assembly maintained in the contractor's entire inventory.

(3) Contractor's CONUS Warehouse Quantity On Order. Enter the quantity of parts/assemblies due in to the contractor's warehouse from repair parts buys.

(4) Quantity On Hand. Enter the quantity on hand of parts/assemblies located at the warehouse(s) and all maintenance sites.

(5) Quantity Available. Enter the quantity of parts/assemblies on order (through repair parts buys), plus the quantity on hand, minus those awaiting parts at all sites.

(6) Contractor's CONUS Warehouse Minimum Level. Enter the minimum reorder stockage level for each part/assembly.

(7) Sites Average Monthly Usage. Enter the average monthly usage of parts/assemblies listed for all sites for the month being reported.

10.1.6 Section VI, Monthly Manhours Report. This section contains information concerning manhour accounting for contractor personnel at each maintenance site for the month being reported.

a. The format of Section VI shall include all data elements as follows.

(1) Legend. Enter a legend explaining the definitions of below entries at beginning of this section.

(2) Site. Enter the name of the maintenance site that manhours are being reported for.

(3) Bench time = Enter the Total maintenance hours expended repairing equipment, including dedicated or uncompensated repair overtime (time logged on repair actions).

(4) Admin time = Enter the total manhours expended by the Site manager (meetings with warehouse personnel or customer representatives) and all time not attributable to a listed category (e.g., bad weather, shop maintenance/update, etc.).

10. PREPARATION INSTRUCTIONS (Cont'd)

(5) Computer time = Enter the manhours spent inputting into the computer.

(6) Training = Enter the manhours spent training site personnel. Time is to be identified in the notes portion as to what, who trained, and why training was performed.

(7) Inv/Rcvg/Ship = Enter the manhours spent conducting inventory control, shipping and receiving.

(8) Other = Enter the manhours not covered above, spent on special efforts/requirements, site maintenance, etc. Time is to be defined in notes.

(9) Productive Hr Total = Total of items see 10.1.6.a.(3) through 10.1.6.a.(8) above.

(10) Holiday = Enter all hours charged to paid holidays.

(11) Sick = Enter all hours charged to paid/unpaid sick leave.

(12) Vacation/Absence = Enter all hours charged to paid/unpaid leave.

(13) Total Available Time = Total hours see 10.1.6.a.(9) through 10.1.6.a.(12) above. Should equal total available hours in other column.

(14) Regular Hours = Enter the total hours available for work in that month (week days in the month times standard hours including holidays times the number of tech.).

(15) Tech Assist In = Enter those manhours where a technician has come into the reporting site from another site to perform equipment maintenance (do not include travel time). Explain in the notes.

(16) Tech Assist Out = Enter those manhours where a technician from the reporting site is sent to another site to perform equipment maintenance (including travel time). Explain in the notes. Should be included as a negative.

(17) Overtime = Enter all overtime hours charged to the contract. Explain in the notes.

(18) Uncompensated OT = Enter all overtime hours not charged to the contract but worked by the technician.

(19) Total Available Hrs = Regular hours plus others, see 10.1.6.a.(14) through 10.1.6.a.(18) above.

(20) Notes = A word processing area to clarify an entry or explain any/all exceptions.

(21) Technicians/Clerks = Enter the number of the technicians/clerks assigned to the maintenance site.

10.1.7 Section VII, Action Item Log. This section contains information regarding failures beyond those that are anticipated and corrected as a matter of normal routine. These failure reports cover items that may include the following.

10. PREPARATION INSTRUCTIONS (Cont'd)

a. Complete and continuous inoperable conditions unresponsive to normal corrective actions.

b. Excessive downtime required for corrective repair.

c. Uniqueness and/or complexity of trouble analysis and repair.

d. Corrective improvisations (temporary or permanent).

e. Critical design improvement.

f. Test equipment and/or facilities inadequacies.

g. Absence or inadequacy of safeguards and protection to personnel and/or equipment.

10.1.7.1 The format of Section VII shall include all data elements as follows.

a. Enter table of contents listing all mail items since origination.

b. System. Enter the nomenclature of the system that is experiencing the problem/failure.

c. Site. Enter the maintenance site(s) that are experiencing the problem/failure.

d. Originator. Enter the name/source from where the problem/failure originated.

e. Date. Enter the date the problem/failure initially surfaced.

f. Description. Enter a brief description of the problem area.

g. Part Number. Enter the part number of the problem/failed part/assembly.

h. Statement of Problem. Enter a statement defining the problem/failure of affected part/assembly.

i. Probable Cause. Enter a statement(s) defining the probable cause of the problem/failure.

j. Suggested Repair. Enter a statement(s) defining a suggested repair to the problem/failure.

k. Current Status. Enter all pertinent data regarding problem/failure that has occurred since problem/failure initially surfaced. Information to include all actions that have occurred and the dates at which they occurred.

l. Reference. Enter any reference documents (e.g., Field Alerts, internal memorandum numbers, etc.) that are pertinent to the problem/failure being reported. Copies of referenced documents should follow the applicable action item log.

10.1.8 Section VIII, Field Maintenance Bulletins. (FMB) This section contains information regarding corrections to failures/problems that have surfaced in the field. The field maintenance bulletin explains the nature of the failure/problem and corrective action taken to fix said failure/problem.

10. PREPARATION INSTRUCTIONS (Cont'd)

a. The format of Section VIII shall include all data elements listed below.

(1) Engineering Change Request & Analysis (ECRA) Number. An internal number assigned by the contractor. Enter appropriate number in this block.

(2) Engineering Change Proposal (ECP) Number. An internal contractor generated ECP number or Government assigned ECP number. Enter appropriate number in this block.

(3) Contract Number. Enter the current CLS contract number.

(4) Bulletin Number. Internal number assigned by the contractor. Enter the appropriate sequence number for the bulletin.

(5) Issue Date. Enter the date the FMB was issued.

(6) Affected End Item. Enter the part number of the end item affected by the failure/problem.

(7) Name of Affected Assembly. Enter the nomenclature of the assembly affected by the failure/problem.

(8) Part No. of Affected Assembly. Enter the part number of the assembly affected by the failure/problem.

(9) Effectivity of Change. Enter a statement defining what equipment will be effected by the change.

(10) Problem Description. Enter the description of the failure/problem.

(11) Description of Change. Enter the description of the change/fix that corrects the failure/problem, to include parts required, tools and materials required, instructions and diagrams that depict details of the change.

(12) Approvals. Signatures of contractor personnel shall be affixed to the bottom of each bulletin signifying concurrence/approval of said bulletin. Approvals should be obtained from personnel in Engineering, Quality Assurance, Contractor Logistics Support, and Program Management.

10.1.9 Section IX, Consolidated Maintenance Summary for Canvas Repair, Cable Repair and Circuit Card Repair. This section provides a basis for analysis and evaluation of parts/assemblies used in canvas refurbishment, cable repair and circuit card repair programs. The format of section IX shall include all data elements as follows.

a. Period. Enter the time period that is covered by this report.

b. Part Number. Enter the part number of the part/assembly used.

c. Nomenclature. Enter the nomenclature of the part/assembly used.

d. Quantity Used. Enter the total number of parts/assemblies used for each part number.